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EXAMINING ACADEMIC RESILIENCE FACTORS AMONG AFRICAN
AMERICAN HIGH SCHOOL STUDENTS

DISSERTATION

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in the
College of Education at the University of Kentucky

By

Natasha LaDawn Murray

Lexington, Kentucky

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and Co-Director: Dr. Kenneth M. Tyler, Professor of Educational Psychology

Lexington, Kentucky

2018

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ABSTRACT OF DISSERTATION

EXAMINING ACADEMIC RESILIENCE FACTORS AMONG AFRICAN AMERICAN HIGH SCHOOL STUDENTS

Public school systems in America continue to show unequal learning outcomes for African American students. This investigation seeks to understand salient factors that are critical and essential to the process of increasing the probability of academic resilience (success) among African American students. Academic resilience is defined as “the process of an individual who has been academically successful, despite the presence of risk factors (i.e., single parent family, low future aspirations, and low teacher expectation) that normally lead to low academic performance” (Morales & Trotman, 2011, p.1). Using the baseline data from the Educational Longitudinal Study (ELS: 2002), a multilevel logistic model was developed that aimed to identify individual and collective characteristics of African American students who were academically resilient.

The multilevel logistic model revealed five statistically significant student-level variables. When comparing two African American high school students one unit apart in SES, for the student with the lower family SES, one unit increase in their academic expectation would make the student 3.21 times more likely to be academically resilient; whereas for the student with the higher SES, one unit increase in their academic expectation would make the student 2.48 times more likely to be academically resilient. Consider two African American high school students one unit apart in terms of teacher expectation, the one with higher teacher expectation was 1.67 times more likely to be academically resilient than the one with lower teacher expectation. Spending one more hour in homework per week was 1.12 times more likely to make an African American high school student academically resilient. Lastly, when comparing two African American high school students one activity apart in terms of school involvement (e.g., band, chorus, sports, or academic clubs), the student with the higher number of school involvement activities was 1.67 times more likely to be academically resilient than the student with the lower school involvement activities.

The multilevel logistic model also revealed two statistically significant school-level factors. Specifically, when comparing two high schools one unit apart in school academic climate, African American students in the high school with higher academic

climate were 7.44 times more likely to be academically resilient than African American students in the high school with lower academic climate. When comparing two high schools one unit apart in school remedial efforts, African American students in the high school with lower school remediation efforts were 4.54 times more likely to be academically resilient than African American students in the high school with higher school remediation efforts.

KEYWORDS: Academic Resilience, African American, High School Students

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04/10/2018

EXAMINING ACADEMIC RESILIENCE FACTORS AMONG AFRICAN
AMERICAN HIGH SCHOOL STUDENTS

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This work is dedicated to family, my husband, Marqus Murray, and my children, Myles
and Malcolm Murray.

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"I can do all things through Christ which strengthens me." Philippians 4:13.

I never thought this pursuit to have three little letters after my name would come to an end. As I close this chapter of my life, I first must give honor to God for all the grace and favor bestowed upon me throughout this process. Next, I would like to thank my Dissertation co-chairs, Dr. Xin Ma and Dr. Kenneth M. Tyler. Dr. Ma, you believed in me from the very beginning of the program. Dr. Tyler, you agreed to take me on and have supported me every step of the way. To you both, thank you for your encouragement, mentorship, tough conversations, long email debates, and support. Your expertise helped to build and enhance the foundation of this research. Additionally, I would like to thank the rest of my committee members, Dr. Fred Danner and Dr. Wayne Lewis. I am forever grateful for your kind words, lending me your expertise, and advice along the way.

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Finally, I must end as I began with saying, thank you God for your continued blessings, grace, and mercy which have filled me throughout this journey and opened so many doors. I look forward to the next chapter of my life, career, and new accomplishments.

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Chapter 1: Introduction

The purpose of this study was to explore factors that influence academic success among African American youth in high school. The term in the research literature that describes such academic success is *academic resilience*, which is defined as “the process of an individual who has been academically successful despite coming from a statistically ‘at-risk’ background (i.e., low socioeconomic status, single parent family, and low academic expectations) that normally lead to low academic performance” (Morales & Trotman, 2011, p. 1). The researcher examined family characteristics (e.g., individual and environmental) and school characteristics (e.g., contextual and climate) and their association with academic resilience among African American youth. This chapter provides the background for this study, outlined in the following manner: (a) statement of the problem, (b) rationale of the study, (c) definition of terms, (d) purpose of the study (research questions), and (e) significance of the study.

Statement of the Problem

Public school systems in America continue to show unequal outcomes for African American students (Comeaux & Jayakumar, 2005; National Center for Education Statistics [NCES], 2016; Spencer, 2009). Specifically, the disparities in standardized test performance between African American students and their Caucasian peers have been well documented (APA Presidential Task Force on Educational Disparities, 2012; Grimm, 2008; Lewis, James, Hancock, & Hill-Jackson, 2008; NCES, 2016). For example, previous research revealed that many African American students in the 12th grade perform at the same level as their 8th grade Caucasian peers (NCES, 2012). Further, the achievement gap in mathematics and reading performance has remained at 26

points difference, with African American students scoring on average 26 points lower than their Caucasian peers (NCES, 2012). More recent national publications revealed that the achievement gap has widened to approximately 30-point difference on average in these content areas (NCES, 2014; National Assessment of Educational Progress [NAEP], 2016). These achievement gaps, as reflected in various national academic assessments, are seen as early as kindergarten and persist through secondary level education (APA Presidential Task Force on Educational Disparities, 2012; NCES, 2017). Of particular concern, the lower academic performance of some African American students may lead to lower placements in gifted and talented education programs and entry into postsecondary education (Aud, Fox, & KewalRamani, 2010; NCES, 2017). Additionally, African American students are overrepresented in special education programs, school suspension, and expulsion at three times the rate of their Caucasian peers (Aud et al., 2010). These reports establish African American students as a disadvantaged category regarding schooling who face an uphill struggle to overcome low academic performance. Based on this concern and in application of the Morales and Trotman's (2011) definition, some African American students are considered an "at-risk" population and those in the population who demonstrate great academic achievement are considered academically resilient in this study.

Consequences of consistently low academic performance for one specific group of people (African American students) are important to the overall growth of this nation. Projections show that, by 2060, the African American population will reach nearly 60 million and account for approximately 14% of the total population (U.S. Census Bureau, 2014). The number of African American youth will continue to increase in American

schools, and their education, or lack thereof, may reduce this nation's future economic growth and contribute to the cycle of poverty within their community (Darling-Hammond, 2010; NAEP, 2016; U.S. Census Bureau, 2014). Therefore, exploring key factors that have a positive impact on African American student achievement, efforts aimed at closing the achievement gap can be more targeted and effective.

Rationale of the Study

There are critical theoretical orientations (approaches) in understanding the low performance among African American students when compared with their Caucasian peers (Coley, 2011). One major theoretical orientation such as the deficit theory focuses on the lower performance of African American students by exposing the challenges that the mainstream education system (i.e., a curriculum based on European norms) faces to educate them successfully (e.g., Delpit, 2012; Gay, 2000; Murphy, 2010).

As other researchers explored the low performance among African American students, a multicultural approach exploring the relevance of race and academic failure in education appeared (Gay, 2000). This theoretical approach suggests that people's worldview affects their way of making sense of the world around them (Ford, 2014; Gay, 2000; Grant, 2003; Ungar, 2005). Regarding the academic achievement among minority students, Ungar (2005) suggested that each population's worldviews are unique to such a degree that they warrant an isolated and focused effort. For example, Gay (2000) suggested that school environments, teacher expectations, and school curricula that pay attention to cultural worldviews of minority students play a key role in their academic success (see also Kumar, 2006; Osher, Dwyer, & Jackson, 2004). This approach suggests

that academic performance may not be improved until the school curriculum becomes relevant to the lives of the African American child (Gay, 2000).

Overall, a multicultural approach points out (risk) factors (i.e., single parent household and low academic expectations) that may promote academic failure. Morales and Trotman (2004), however, asserted that research must shift from focusing on (risk) factors that promote academic failure to (protective) factors that promote academic success. Empirical studies embracing the latter approach carefully examine why some African American students can overcome all adversities and become exceptionally successful academically. Academic resilience researchers seek to understand why and how some members of traditionally marginalized groups can achieve academic success despite the risk factors or academic setbacks they may face. Because the resilience approach primarily attempts to identify characteristics of students and their surrounding environments that are associated with academic success despite adverse (risk) factors of circumstances (Morales, 2010; Morales & Trotman, 2011; Williams & Bryan, 2013), academic resilience research enhances our understanding of internal (personal) and external (collective) factors that are associated with academic success (Gardynik & McDonald, 2005; Trask-Tate & Cunningham, 2010). Despite the lack of empirical studies that determine how individual and environmental factors influence academic resilience, some researchers have seen great merits in this approach (Coley, 2011; Morales & Trotman, 2011; Trask-Tate & Cunningham, 2010). The merit of this approach has provided groundwork for the advancement of social policies within social institutions (i.e., schools) to promote academic success among African American youth (e.g., Martin & Marsh, 2009; Morales, 2010; Williams & Bryan, 2013).

The academic resilience approach provides us with greater insights as to why some African American students are high achieving in schools while others are not (Williams & Bryan, 2013). Emerging themes across limited studies emphasize the importance of the support of teachers, friends, and family to promote academic resilience among African American youth (American Psychological Association Task Force, 2008; Marsh, Chaney, & Jones, 2012; Morales, 2010; Williams & Bryan, 2013). Nonetheless, students that demonstrate academic resilience have seldom been recognized or understood in school settings by educational stakeholders (Martin & Marsh, 2009; Marsh et al., 2012; Williams & Bryan, 2013). When considering their academic achievements, educational stakeholders often ignore the outside factors (family, peers, and community) that influence their success (Morales & Trotman, 2011; Trask-Tate & Cunningham, 2010; Williams & Bryan, 2013).

To prevent African American students from falling through the cracks of the public education system, one effective strategy is to understand the protective factors of academic resilience (e.g., family, school, and community) that make it possible for students to thrive academically in the face of adversity. An understanding of these factors will assist parents, teachers, school administrators, and community members to create, modify, and improve existing school policies and programs to improve academic outcomes for all African American students (Fraser, 2004; Morales, 2010; Williams & Bryan, 2013). This is the underlying philosophy of the academic resilience approach to address the learning problems of African American students. This study adopts this (uncommon) approach.

Definition of Terms

Academic resilience. In line with previous research *academic resilience* is defined as “the process of an individual who has been academically successful despite coming from a statistically “at- risk” background (i.e., low socioeconomic status, single parent family, and low academic expectations) that normally lead to low academic performance” (Morales & Trotman, 2011, p. 1). In other words, academic resilience is the student’s ability to overcome academic setbacks, stress, and study pressure associated with school typical among a population of at-risk students (e.g., African American students) (Morales & Trotman, 2011). Operationally, African American students who perform above average in Grade 10 in a combined measure of the core content areas of reading and mathematics are academically resilient. Statistical procedures to operationalize this definition are discussed in detail later.

Protective factors. *Protective factors* refer to both family characteristics and school characteristics that work against potential risk factors (see Morales & Trotman, 2004). Protective factors can be either personal or collective. Personal protective factors often focus on attitudes of students as they interact with families and peers that may safeguard them from adverse situations (Esquivel, Doll, & Oades-Sese, 2011; Morales, 2010; Newman, Myers, Newman, Lohman, & Smith, 2000). In line with this practice, the present research perceives these attitudes as coming from students and families. Collective protective factors often consist of schools and communities, representing supports that may help students buffer adverse situations (Bernard, 2004; Esquivel et al., 2006). Based on the data at hand, the present research highlights school environment through its context and climate.

School context. Ma, Ma, and Bradley (2008) classified school (environment) characteristics into school context and school climate. *School context* refers to “the ‘hardware’ of the school, with characteristics descriptive of the physical background (e.g., school location and resources), the student body (e.g., school socioeconomic and racial-ethnic compositions), and the teacher body (e.g., levels of teacher education and teaching experience)” (p. 59).

School climate. *School climate* refers to “the ‘software’ of the school, with characteristics descriptive of learning environment (e.g., administrative policies, instructional organization, school operation, and attitudes, values, and expectations of students, parents, and teachers)” (p. 60). Because this study includes environmental factors that may be associated with academic resilience among African American youth, it is important to focus on school climate variables because school policies and practices are under the influences of parents, teachers, and administrators (Ma et al., 2008).

Purpose of the Study

Using the Educational Longitudinal Study (ELS: 2002-2006), a national dataset, this study seeks to explore factors that positively influence the academic resilience (success) among African American high school students. Previous empirical studies embracing the academic resilience approach lack a solid theoretical basis. Thus, this paper is guided by the conceptual approach of Bronfenbrenner (1986) Ecological System theory to explain the processes related to academic resilience. The social-ecological system provides guidance on the social and ecological dimensions that contribute to student and school factors that influence academic resilience. Bronfenbrenner argued that human development processes could be explained in terms of relationships between

individuals and their environment. In essence, he broadly describes a linkage between the student, peer, family, school, and community (Bronfenbrenner, 1986). Ma, Ma, and Bradley (2008) also provided a good framework to operationalize the conceptual approach of Bronfenbrenner's (1986) work. Specifically, the present research aims to identify personal traits of students (and families) and collective characteristics of school environment (context and climate) that are associated with academic resilience.

The following research questions (RQ) were:

(RQ 1). What student and family characteristics are associated with the academic resilience among African American high school students?

(RQ 2). What school contextual and climate characteristics are associated with the academic resilience among African American high school students?

This study was designed to expand the limited research literature suggesting that academic resilience may be associated with personal and environmental characteristics. With a large-scale database providing a nationally representative sample of African American students and an advanced statistical technique reliably integrating personal and collective characteristics, this study aimed to examine the roles that personal and collective protective factors play in promoting academic resilience among African American high school students.

Significance of the Study

This study will contribute to the research literature in two ways. First, this study attempts to quantify the effects of various protective factors (both personal and collective) that are associated with the academic resilience among African American high school students. Proponents of the academic resilience approach call for fostering self-

efficacy in students, (Hamill, 2003; Morales & Trotman, 2011) building a supportive relationship among teachers, students, and families (Morales & Trotman, 2011; Trask-Tate & Cunningham, 2010; Williams & Bryan, 2013). However, the existing research literature does not provide sufficient information on exactly which protective factors are essential to produce academic resilience, especially among African American students. This study examines personal and collective factors that are associated with academic resilience. In doing so, there is a possibility to fill in the gap in the research literature (that has not identified salient resilience factors essential to African American student achievement).

Second, because academic resilience studies that are quantitative in nature usually use small and often non-representative samples of minority students (e.g., Martin & Marsh, 2009; Morales, 2010; Williams & Bryan, 2013), the credibility of generalization resulting from statistically significant findings is an unresolved issue in the research literature. This study applies a large representative sample of African American students from the Educational Longitudinal Study (ELS: 2002), a national database (see Borman, 2001). In other words, the present study effectively minimizes biases coming from sample selection and allows the findings to be generalized to the target population of interest with greater confidence. As a result, this study can reliably portray a picture of individual and environmental factors that are associated with academic resilience among African American youth.

Organization of the Study

This chapter serves as an introduction for this study providing an overview of relevant research, the statement of the problem, and research questions. Chapter 2

provides an overview of theoretical frameworks related to both the underachievement and success of African American students. Chapter 3 describes the sample and data issues, as well as variables (measures) and statistical procedures used in this study. Chapter 4 describes the analyses of the results. Finally, Chapter 5 is a summary that includes the implications of the results and recommendations for future research.

Chapter 2: Literature Review

The purpose of this literature review is twofold. First, it provides an overview of previous theoretical approaches that attempted to address the underachievement of African American students. Second, conceptual approaches are discussed that attempt to address the academic success of African American students. At the end of this chapter, is a summary discussion of individual and external factors that are associated with academic success among African American youth.

Overview of Deficit Models

Intellectual Deficit. Since the early 1900s, two major theories were presented to explain the underachievement of African American students (i.e., intellectual deficit and cultural deficit). Early psychologists examined the achievement gap from an intellectual deficit approach, based upon genetics or family socioeconomic status (see Coleman, 1966; Jensen, 1969; Terman, 1916). This deficit model postulates that students who fail in schools do so because of innate intellectual deficiencies (Valencia, 1997). These deficiencies supposedly lead to limited intellectual abilities, linguistic shortcomings, a lack of motivation to learn, and immoral behavior (Culross & Winkler, 2011; Terman, 1916; Valencia, 1997).

Popularity to the deficit viewpoint arose when Lewis Terman, a psychologist in the United States, published his version of the Binet intelligence test (Cravens, 1992). The Stanford-Binet intelligence test, is a test designed to determine a student's intelligence quotient (IQ). In order to do so, the individual's mental age (i.e., determined by their performance score) is divided by an individual's chronological age (i.e., actual age) and then multiplied by 100 (Craven, 1992). The range of the intellectual quotient is 36-164, with a score between the 90-100 range indicating average intelligence, and scores

above 130 considered gifted (Craven, 1992). By the 1920's, the Stanford-Binet test had become commonly used among schools in the United States.

A major correlational study of intelligence and achievement emerged when Jensen's (1969) article entitled, *How Much Can We Boost IQ and School Achievement* became published in the *Harvard Educational Review*. His article debated whether cognitive deficits exist and examined the relationship between race and intelligence. In this study, the Stanford-Binet intelligence test was administered across ethnically diverse student groups to examine genetic and non-genetic influences on intelligence and scholastic achievement. Jensen's goal was to see how to boost intelligence so that more students would be eligible for college (Jensen, 1969). This study suggest that genetics accounted for 80 percent of the difference observed in IQ scores, while 20 percent was accounted for by environmental differences (Jensen, 1969).

It was not until the publication of *The Bell Curve* by Herrnstein & Murray (1994) that the deficit approach resurfaced again. Herrnstein & Murray (1994) presented arguments that supported previous genetic dispositions on intelligence (i.e., intelligence is an inherited trait). Their study consisted of a sample of 11,878 youth, including a large sample of African Americans (N=3,022). Using data from the National Longitudinal Survey of Youth, they examined intellectual (IQ) scores of mostly 17 year olds that took the Armed Forces qualifying test. These researchers found that, on average, the African American sample scored lower (85) than all other groups; Latino (89), White (103), Asian (106), and Jewish Americans (113), respectively (Herrnstein & Murray, 1994). This study provided additional support to the deficit theory with regard to intellectual inferiority by suggesting that group differences in cognitive ability between

Caucasian and African American 17-year-olds was due to genetic deficits (Herrnstein & Murray, 1994). Genetic deficits became a term used to explain the lower academic performance and intellectual functioning among African American youth relative to their Caucasian peers (Jensen, 1969). According to Herrnstein & Murray (1994), the average IQ for African Americans was not only lower than Caucasians, but for the Latino, Asian and Jew American races as well.

In sum, the theories and conclusions produced for the deficit approach by Euro-American psychologists (e.g., Arthur Jensen, Edward Thorndike, and Lewis Terman) promoted the notion that African Americans are intellectually inferior to Caucasians. Further, it seems that research using the deficit theory suggest that these deficiencies were linked to genetics (e.g., lack of intelligence) and cultural factors (e.g., family background characteristics) or both (Terman, 1916; Jensen, 1969; Herrnstein & Murray, 1994).

It is important to note that there has been some controversy over the deficit theory approach. For example, it makes sense that if a test was made for a specific group (e.g. the Stanford-Binet intelligence test based on European norms), that one would expect members of that group to score higher compared to others outside of that group. Further, individuals taking this test are judged based on experiences to which they may not have been exposed. Thus, the test of intelligence using this method is specific to the individual or culturally defined. A more plausible explanation for the lower academic performance among African American youth would be the notion that world perception and knowledge is developed through a cultural lens (Bernard, 2004; Gay, 2000; Morales,

2010). This notion shifted the research from a genetic deficit approach to a cultural deficit approach (Bernard, 2004; Delpit, 2006; Gay, 2000).

Cultural Deficit. Social and economic scientists took a cultural deficit approach to explain the lower performance of African American youth. This approach claimed that a child's environment was deprived of the necessary elements (e.g., high self-concept/ need for academic success) to achieve academically (Haycock & Jerald 2002). Similar to the genetic deficit theory, the cultural deficit approach continues to blame the victim by pointing to family structures and a presumed culture of poverty (Bernard, 2004; Delpit, 2012; Gay, 2000). For example, the cultural deficit approach suggests the structure of an American family points to the family's economic and employment levels as well as family structure (i.e., single parent households, number of siblings, and lack of parental involvement) as important explanatory factors that negatively impact academic outcomes (Delpit, 2012; Kunjufu, 2007).

Two major studies examining environmental and family background factors that may be associated with academic outcomes were the Coleman, Campbell, Hobson, McPartland, Mood, Weinfield, & York (1966) study and Jencks, Smith, Ackland, Bane, Cohen, Gintis, Heyns, & Michelson (1972) study. The next section will describe both studies.

The study by Coleman and colleagues (1966), commissioned by the U.S. Department of Education in accordance with the Civil Rights Act, examined equitable learning conditions within a public school setting (Coleman et al., 1966). This report consisted of national survey data from over 600,000 students (Grades 3, 6, 9, and 12) and 60,000 teachers in over 4,000 public schools across the United States. Researchers

examined racial-ethnic and socioeconomic differences in academic achievement. Coleman and colleagues (1966) reported that school factors (i.e., funding and teacher quality) had little impact (approximately 10 percent) on the differences in achievement among African American and Caucasian students (Coleman et al., 1966). However, this national survey of students' abilities and interest revealed a gap (approximately 85% lower performance) in reading and mathematics achievement among African American students compared to their Caucasian peers (Coleman et al., 1966). Further, these researchers pointed out that external factor such as characteristics of family background (e.g., parent education level and socioeconomic status) impact student academic achievement outcomes. In other words, these researchers suggested that to improve the African Americans student's achievement, the nation must improve the socioeconomic conditions for African American families.

Measuring the gap in academic performance was not a major focus of this national study; however, it did shed light on the inequity of learning conditions exposed to African American youth (e.g., poor schooling facilities, larger classes, less than adequate curriculum materials). This study emphasized how the schooling environment is associated with the academic performance among African American youth, yet other researchers suggest that it is the student's family background characteristics that play a larger role in their academic performance (Jencks, Smith, Ackland, Bane, Cohen, Gintis, Heyns, & Michelson, 1972).

Jencks and colleagues (1972) published their study entitled *Inequality: A Reassessment of the Effect of Family & Schooling in America*. This study re-analyzed much of the data used in the Coleman (1966) report. As a recap, Coleman and colleagues

(1966) claimed that schools only contribute to approximately 10 percent of the variance accounting for African American and Caucasian group differences in student academic performance. A decade later, Jencks & colleagues (1972) decided to investigate other factors that could possibly explain the remaining 90 percent. Jencks and colleagues (1972) examined academic performance and the relationship between a student's IQ score and socioeconomic status (Jencks et al., 1972). These researchers concluded that approximately 25 percent of the variance of socioeconomic status (income difference) could be explained by a student's years of schooling and IQ score (Jencks et al., 1972). These studies suggested that differences in academic performance among minority students were due to two factors not controlled by the schooling environment (e.g., family background characteristics and parent's level of income), (Jencks et al., 1972).

Lee and Burkham's (2002) study expanded Jencks' (1972) study to examine how the home environment may influence a child's level of intelligence before he/she enters the school system. Using the data from the Early Childhood Longitudinal study, these researchers examined differences in kindergarten entrance tests scores based on ethnicity and socioeconomic status (SES). Differences within the home environment included; access to books, technology, and limited time watching television. These differences accounted for most of the variance in achievement, with the largest variation among individuals of low SES (Lee & Burkham, 2002). These researchers further revealed that ethnic minority and low-income students were most likely to attend the lowest quality schools (schools with low funding) which resulted in increased disadvantages (lack of resources) when entering the education system (Lee & Burkham, 2002).

These disadvantages continue at the high school-level. The Austin, Hanson, Bono, and Cheng (2007) longitudinal study of 14 urban high schools revealed that high schools with higher percentages of Hispanic and African American students had lower student achievement scores on standardized tests. In other words, the disadvantage of more schools filled with ethnically diverse youth, may result in more schools with lower achievement on standardized European tests.

Summary of the Deficit Model

It is important to note how social science researchers first began to examine the issue of lower performing African American students relative to their peers.

Consistently, these studies have disproportionately focused on factors related to school failure rather than factors related to academic success (Morales, 2010). In other words, the deficit perspective diverts the attention from the personal competencies, natural support systems, resources, and strengths that African American youth from high-risk environments possess.

As a recap, we learn six things from the deficit perspective: 1) this perspective averts attention from societal and systemic causes of lower achievement in schools (Dudley-Marling, 2007; 2) families, communities and students were blamed for their lower academic performance (Kozol, 2000); 3) racial and ethnic minority cultural values, as transmitted through the family, are dysfunctional and therefore, cause low academic achievement (Delpit, 2012; Gay, 2000; Ladson-Billings, 2006); 4) the association between school practices and policies and student outcomes were not acknowledged (Delpit, 2012); 5) this approach reinforces negative stereotypes and assumptions regarding students of color from a low-income background (Steele, 2010); and 6) this

approach fails to account for students who come from families and communities with the similar characteristics and yet succeed in school (Morales, 2010; William & Bryan, 2013; Winfield, 1994).

Instead of blaming students and families, it is important for educators to adopt an approach that focuses on strengths and capabilities of students and families from high-risk environments. Over two decades ago, we learned from Winfield's (1994) work that educators needed to change their approach from one that emphasizes deficits to one that capitalizes on protection, strengths, and assets. He further claimed that educators would have to become experts at predicting who will fail (Winfield, 1994). According to Winfield (1994), to design effective interventions, educators must understand how some students persist and succeed in school and later in life despite the overwhelming odds against them (p. 39). To discuss this important claim, the next section of this chapter will present a more recent conceptual approach (academic resilience) to explain the academic success among African American youth.

Transition from Deficit Models to Academic Resilience Models

Garmezy (1991) suggested that the study of success is just as important as the study of failure. Researchers that examine academic success among ethnically diverse students often refer to it as academic resilience (Morales & Trotman, 2004). Academic resilience is defined as “the process of an individual who has been academically successful, despite the presence of risk factors (i.e., single parent family, low future aspirations, and low teacher expectation) that normally lead to low academic performance” (Morales & Trotman, 2011, p.1). This academic resilience approach primarily attempts to identify characteristics of students and their surrounding

environments that have been shown to be associated with academic success despite adverse (risk) factors of circumstances (Conchas, 2006; Kitano & Lewis, 2005; Morales, 2010).

One major framework that has guided much of the research of educational resilience is Bronfenbrenner's Ecological Theory. This theory, which is deeply rooted in educational psychology, suggests that there are commonalities among the influence on children's adjustment in their environment (Bronfenbrenner, 1986; Garmezy, 1991; Werner & Smith, 1992). These commonalities include influences at the level of community (neighborhoods and social supports), the family (parental involvement), and the child (personal traits and social skills). Particularly, Bronfenbrenner's (1986) ecological theory sheds light on the transactional nature of environmental contexts (such as culture, neighborhood, and family) to the individual. According to Bronfenbrenner's (1986) perspective, these levels transact with each other over time to shape an individual's development and adaptation. Despite the lack of empirical studies examining how individual and environmental factors influence academic resilience (Morales, 2010; Morales & Trotman, 2004; Trask-Tate & Cunningham, 2010), some researchers have seen merits in this approach for the study of socially disadvantaged African American youth (e.g., Brown & Jones, 2004; Martin & Marsh, 2006, 2009; Morales, 2010; Morales & Trotman, 2004). Some of these proposed theories are presented below.

Theoretical Frameworks that Support Academic Resilience

Over the last decade, more research has supported the academic resilience approach to identify factors related to academic success (Brown & Jones, 2004; Cunningham &

Swanson, 2010; Martin & Marsh, 2006; Morales, 2008, 2010). The next section will highlight three major research studies that support looking at factors of success described in this study as academic resilience.

Future Temporal Orientation. First, one cannot discuss academic resilience without reviewing Brown and Jones' (2004) study of Future Temporal Orientation (FTO). FTO refers to the student's perspective of how far they will go in their academic career, which in turn influences their educational values and academic motivation toward future goals (Brown & Jones, 2004). This study investigated the relationship between FTO and academic performance of African American (N = 334) high school students in two schools. According to these researchers, FTO is part of a three-step process: 1) perception of education usefulness, 2) valuing academic work, and 3) student's GPA. These researchers found that FTO is associated with a student's feeling about the usefulness of school, which is associated with valuing academic work and maintaining higher grades (Brown & Jones, 2004). Further, the researchers found that the relationship among these three factors may serve as possible protective factors for African American students in their pursuit of academic achievement. The following paragraphs will discuss other studies that have found similar models in search for factors associated with academic resilience among high school students.

Five-C's Model. Likewise, Martin and Marsh (2006) proposed a model they refer to as the Five-C's model. This study of 402 Australia high school students resulted in five factors that promote academic resilience. The Five-C model includes: 1) confidence (self-efficacy), 2) coordination (planning), 3) control (discipline), 4) composure (low anxiety), and 5) commitment (persistence), (Martin & Marsh, p. 277). A

path analysis showed that these five factors promoted academic resilience in three areas of education: 1) enjoyment of school, 2) class participation, and 3) self-esteem (Martin & Marsh, 2006).

Similarly, Cunningham & Swanson's (2010) study of 206 African American high school students explored several factors related to academic resilience. Among these factors, two stood out among this student group: 1) high parental involvement (i.e., monitoring) and 2) supportive adults, in the school context, who served to positively influence resiliency despite stressors in students' lives. In addition, the researchers found that high academic self-esteem was a critical element for the African American students characterized as being resilient.

There are a limited number of studies examining academic resilience among high school students, let alone African American high school students. More research is needed in this effort. The following section will review studies of academic resilience among diverse college students.

Protective Factor Clusters. Morales' (2010) longitudinal study of high achieving and low socioeconomic status students in public urban schools examined the process and outcome of academic resilience for African American and Hispanic American college students. This longitudinal study lasted for approximately seven years and used a qualitative method. Morales (2010) found two protective factor cluster models of academic resilience among African American students. The first cluster of protective factors is labeled *skillful mentoring for future success* (Morales, 2010). Within this cluster, Morales' (2010) study identifies five individual protective factors: (1) willingness/desire to move up in social class; (2) caring school personnel (K-12); (3)

caring school personnel (college); (4) sense of obligation to one's race/ethnicity; and (5) strong future orientation. (Morales, 2010). These factors communicate that, "it is ok to be smart," (Morales, 2010, pg. 167). These factors, in isolation, may also be important to academic success; yet, Morales (2010) argues that it is the interplay of these factors (e.g., parent models of strong work ethic and parental high academic expectations) that serve to protect and promotes resilience.

Morales (2010) identified a second cluster of protective factors named, "*pride, debt, effort, and success; becoming someone,*" p. 169). In this cluster, Morales (2010) identified seven variables including: 1) strong work ethic, 2) persistent, 3) high self-esteem, 4) internal locus of control, 5) attendance at out of zone school, 6) high parental expectations supported by works and actions, and 7) mother modeling strong work ethic. Morales (2010) suggests that the interaction of these factors (not in isolation) is what will foster academic success. In essence, Morales (2010) believes that a model of academic resilience can be identified among these factors working together to buffer against risk of academic failure.

Consistent with previous research (Masten, 2001; Morales, 2008; Reis, Colbert, and Herbert, 2005), the researchers presented above have focused their efforts to examine how internal and external factors serve to protect students from adverse environments (Brown & Jones, 2004; Cunningham & Swanson, 2010; Martin and Marsh, 2006; Morales, 2010). Before moving on to what factors protect students from risk, we must first discuss what risk factors may hinder academic achievement, specifically among African American students.

Risk Factors. Risk factors are defined as conditions that increase the likelihood of a problem developing (Green & Conrad, 2002). Let me begin by stating that risk factors do not guarantee that all youth will have academic or behavioral problems; but risk factors may increase the opportunity for academic or behavioral problems to occur (Morales, 2010). There are several risk factors that may place African American youth at risk for academic failure. This section will provide an overview of two commonly cited factors: low socioeconomic status (SES) and family background characteristics (Borman & Overman, 2004; Esquivel, Doll, & Oades-Sese, 2011; Sellers, Copeland-Linder, Martin, & Lewis, 2006).

In Borman and Overman's (2004) study, they specifically identified individual and school characteristics among low-income academically resilient students (approximately 3,981) grades 2 to 7 in the subject area of mathematics. These researchers created four test models of risk factors and resilient-promoting features of schools including: (a) effective schools, (b) peer group composition-minority, free or reduced lunch, and low achieving, (c) school resources-class size, available resources, teacher years of experiences, and (d) the supportive school community model-safe and orderly environment, positive teacher-student social relations, and support for family involvement (Borman & Overman, 2004). The results revealed individual characteristics that included: the level of student engagement, self-efficacy in mathematics, attitude toward school, and self-esteem. Further, these researchers identified school variables that led to academic resilience including: small class size, quality of instructional resources, and year(s) of teacher's experience (Borman & Overman, 2004).

These results support the notion that being poor and a minority exposes students to greater risks (e.g., lower academic self-efficacy). The results of this study are consistent with previous effective school research that builds on “what works” for disadvantaged African American students (Edmonds, 1979). Edmonds’ (1979) study attempted to find effective schools that he defined as successful in teaching all children regardless of their background and parent’s socioeconomic status. He examined achievement data from urban elementary schools in major inner cities of the U.S. (Edmonds, 1979). Edmonds’ (1979) comparison analysis of successful and unsuccessful schools revealed five characteristics which seemed essential to student success including: 1) strong administrative leadership, 2) high expectations, 3) an orderly environment, 4) mastery of basic skills acquisition as the school’s primary purpose, and 5) frequent monitoring of pupil progress. Because of this research, educational researchers adopted Edmonds’ five-factor model as a framework for reforming low-performing schools (Sadovnik, 2008).

Expanding Ron Edmond’s (1979) work, Borman and Overman’s (2004) study provided a clear profile of individual characteristics of academically resilient elementary students (e.g., greater academic engagement, high mathematic self-efficacy, positive attitude toward school, and high self-esteem). These findings suggest that students’ active participation and interest in class and school are important factors for counteracting academic risk.

As mentioned previously, the real cause of an individual’s success is the interplay of protective factors (e.g., attributes, support systems, institutions, and resources) that allow individuals to buffer the effects of risk factors (Greene & Conrad, 2002). The term

protective factor implies internal and external resources that moderate or mediate the effects of risk or adversity and enhance good adaptation or competence (Morales & Trotman, 2004). Similarly, Green and Conrad (2002) defined protective factors as individual characteristics and environmental assets that buffer, interrupt, or even prevent risk.

Researchers theorized that protective factors associated with positive school-related and developmental outcomes for youth are more rooted in environmental interactions among three systems: family, community, and school (Bernard, 2004; Fraser, 2004; Masten & Coatsworth, 1998; Morales, 2010; Williams & Bryan, 2013). These systems may have a direct or indirect impact on student outcomes, serving as a protector to mitigate risk and/or act as a buffer between educational failure and academic success (Morales, 2010). According to Fraser (2004), the stress poverty places on the mental well-being of a single parent may cause him or her to become short-tempered with their child. This hostility from parent to child may influence the child's ability to concentrate on his or her schoolwork (Fraser, 2004).

Esquivel, Doll, and Oades-Sese (2011) sheds light on the value of protective factors (e.g., personality, family, and social environment characteristics), more specifically, in school settings for ethnic minority group members. Esquivel and colleagues (2011) suggest that a focus on protective factors help schools to succeed in their mission of preparing students for productive adult lives, regardless of the risk factors that the child may bring into the classroom (p. 649). Esquivel and colleagues (2011) identified four areas that influence student success. The first area identified was teacher-student relationships. These researchers suggest that educators are more

powerful than parents as far as influencing behavior, progress, and social success of students in the school environment. The second area identified was peer relationships. These researchers concluded that peer relationships provide students with companionship to help, comfort, and make school more fun (Esquivel et al., 2011). The third area identified was family-school relationship. These researchers believed that family-school relationship are related to positive outcomes for students, especially as far as the completion of the schooling process is concerned. Lastly, the fourth area identified was academic self-esteem and behavioral self-control. These two factors are important characteristics of students who believe they can make it in school, find a way to achieve their goals, and in turn develop greater self-esteem (Esquivel et al., 2011).

In essence, these researchers believe that students are impacted by their successes and failures. Likewise, they are also influenced by the success or failure of their peers and by the verbal persuasion; they receive from their teachers and fellow classmates.

Consistent with prior research, Reis, Colbert, and Herbert's (2005) comparative case study of 35 high school students in urban schools examined factors contributing to achievement of students who were identified as academically talented over a three-year period. These researchers found that risk factors (e.g., absence of positive parental or peer influence, too much unstructured time after school, minimal involvement in activities, clubs, sports, or summer programs) led to lower academic outcomes for academically talented students. Further, these researchers found that successful adolescent were exposed to a nurturing care-giving environment (Reis, Colbert, & Herbert, 2005). From the aforementioned research, we gather that protective factors can buffer any kind of stress or challenges that students may face. The next section will

explore the interplay of individual, family, school, and community protective factors and its influence on academic resilience.

Individual Protective Factors. Some researchers believe that students possess individual protective factors that may influence academic resilience (Bernard, 2007; Colbert, & Herbert, 2005; Morales, 2010). These individual protective factors include: strong work ethic, high level of internal locus of control, competence, engaged in goal setting, and possessing a healthy sense of self (Morales, 2008, 2010). Likewise, Bernard (2007) discuss characteristics of the resilient child as another aspect of the resilience theory. The attributes common to most resilient children are “social competence, problem-solving skills, autonomy, and sense of purpose and future” (Bernard, 2007). Below is a description of each characteristic:

Social competence: the ability of an individual to possess “responsiveness, cultural flexibility, empathy, caring communication skills, and a sense of humor,” (Bernard, 2007, p. 3).

Problem solving: defined as “planning, help-seeking critical and creative thinking,” (Bernard, 2007, p. 3). *Autonomy:* defined as a “sense of identity, self-efficacy, self-awareness, task-mastery, and adaptive distancing from negative messages and conditions.” (Bernard, 2007, p. 3)

Sense of purpose: defined as “goal direction, educational aspirations, optimism, faith, and spiritual connectedness,” (Bernard, 2007, p. 3).

Similarly, Wang, Haertel, and Walberg (1997) identified the following as key competencies of resilient children: 1) social competence, 2) intellectual competence, 3) planning, and 4) resourcefulness. Individuals may possess the attributes of social

competence, the ability to problem solve, a sense of one's identity and independence, as well as goals and aspirations. Furthermore, the act of fostering resilience occurs at the "level of relationships, beliefs, opportunities for participation and power" (Bernard, 2007, p. 5).

Knowing that these individual protective factors exist, numerous studies have sought to explore the interplay of individual characteristics of high achieving African American students that come from communities suffering from poverty and their academic performance (Floyd, 1996; Luthar & Zigler, 1991; Reis, Colbert, & Herbert, 2005). Floyd (1996) interviewed 20 high school seniors over the course of several months in an urban area. Findings from her study suggest that the following internal protective factors were key elements to the success of students: a) perseverance and optimism personality traits; b) supportive family; and c) external supports (e.g., teachers, coaches, school and community). Similarly, Luthar and Zigler (1991) explored the relationship between protective factors in the academic success of 144 ninth grade students residing in poor communities. Distinctions were made between protective/vulnerable factors (which interact with stress influencing competence). Scores on a negative life event scale operationalized stress. Data for each student was collected during three 45-minute class periods on three consecutive days. Questionnaires were administered in the same order to all groups. After completing a factor analysis, Luthar & Zigler (1991) identified three main factors that served as protective processes in the classroom environment: internal locus of control, solid interpersonal skills, and social expressiveness.

The Reis, Colbert, & Herbert (2005) study of 35 high school students over a three-year period found that self-determination, motivation, constructive use of time, and participation in extracurricular activities and sports were some of the protective factors that were commonly identified as contributing to their higher academic achievement. Comparative case study and ethnographic methods were used to examine the ways in which some academically talented students develop strategies associated with resilience to achieve academically at a high level. These researchers examined both risk (poor students) and protective factors to explore participants' pathway toward positive or negative academic outcomes. The results of this study show that some protective factors of resilient students included: supportive adults, friendships with other high achieving students, opportunity to take advanced classes, participation in extracurricular activities, belief in self, and ways to cope with negative aspects of their school and urban environment. In contrast, these authors identified that the absence of positive parental or peer influence, too much unstructured time, and minimum involvement in school activities also led to lower academic outcomes. For example, low-performing students who had specific risk factors (e.g., older sibling who dropped out of school or involved in drugs and/or alcohol) also developed fewer protective factors. The authors determined that the combination of high risk and the absence of protective factors may have impeded the ability of some low-achieving students to achieve at higher levels.

As discussed previously, some aspects of the family, school, and community may serve as protective factors for youth. These protective factors are considered external protective factors as they occur outside of the individual. Environments that often serve as protective factors may be comprised of a community of individuals that view

education as a priority and highly valued, set clear boundaries; respect differences, and encourage supportive relationships (Henderson & Milstein, 2003). The next section will describe external protective characteristics of the family, school, and community environments.

Family Protective Factors. Research continues to demonstrate that a powerful indicator of resiliency in children is the quality of their care-giving environment (Reis, Colbert & Herbert, 2005; Werner & Smith 1992; Williams & Bryan, 2013). The Williams and Bryan's (2013) study examining eight high achieving, low-income African American high school graduates from single parent families identified some factors that contributed to their academic success. Consistent among these factors were: verbal praise for good grades, high academic expectations, monitoring academic progress in school, supervision of and help with school work, and the use of physical discipline in response to bad grades and behavior in school (Williams & Bryan, 2013). Additionally, students from a single-parent household noted that their academic success benefited from a positive relationship with their mother and reliance on extended family members for academic support (Williams & Bryan, 2013). These researchers concluded that family protective factors serve as a buffer to many of the environmental barriers (e.g., inadequate housing, financial insecurity, and family structure) that too often undermine academic success for students of color and others from economically disadvantaged backgrounds. Further, it was noted that truly effective parents went beyond simply making isolated comments about wanting their students to do well in school. Instead, parent's expectations translated into concrete actions by enrolling their students in schools outside of their normal attendance area (76%), encouraging their children to read

(80%), and “staying on top” of them about doing their homework (72%). In addition, many of these parents modeled a strong work ethic for their children, often working long hours (multiple jobs) to facilitate opportunities for their children to attend private schools, as well as to free the students of the burden of needing to work themselves (Morales, 2010).

Similarly, Murray and Naranjo’s (2008) investigated factors associated with high school graduation in a high-risk urban context. These researchers interviewed 11 African American graduating seniors from low-income backgrounds to determine how protective factors contributed to their persistence. Broad themes emerged that were associated with school persistence including parents, peers, and teacher factors. For example, highly involved parents in their children’s education and parents that provided structure at home helped facilitate their children’s academic success. Specifically, these parents were successful in maintaining a positive parent-child relationship through nurturing, support, respect, and open communication. Parents also maintained an optimistic attitude about their children’s ability to perform well in school. For example, these parents frequently communicated with the school, their children’s older sibling, and members of the community about academic preparation and progress (Murray & Naranjo, 2008). Further, the presence of at least one caring adult who provided stable care and attention served as a protective factor for children across a variety of risk conditions (Morales, 2010).

Other research studies have established the importance of positive family assets in promoting resilience, academic achievement, and healthy development. These assets include: family cohesion, the absence of consistent family conflict, the acceptance of

responsibilities, value placed on reading and homework, and the benefit of consistent supervision and consequential discipline (Bernard, 2004, 2007; Trask-Tate & Cunningham, 2010). According to Bernard (2004), the aforementioned family attributes are conceptually associated with: (a) improved student morale and academic achievement within all subject areas; (b) increased school attendance; (c) decreased student dropout, delinquency, and pregnancy rates; (d) increased likelihood to attend post-secondary education; and (e) increased self-efficacy, self-worth, and positive social relationships between students.

In sum, a home environment characterized by positive parenting practices, stable surroundings, involvement in school activities, and high academic expectations, can serve as a protective factor for some children. However, just as the home environment is important in supporting youth's pursuit of academic success, other researchers argued that schools play a major role as well (Bernard, 2004; Byfield, 2008, Williams & Bryan, 2013).

School Protective Factors. Past research revealed the impact of the school environment may influence student achievement (Bernard, 2004; Wang, Haertel, & Walberg, 1997). Specifically, schools are in a key position to become a shelter for students whose circumstances place them at risk for educational failure (Bernard, 2004). Empirical studies of high-performing, high-poverty schools indicate that many of them are successful at fostering academic resilience and are thus able to serve as models for schools desiring to improve their students' performance (Kober, 2001). These studies used multiple research methods (i.e., comparative analysis and field-based studies; synthesis studies, correlational studies, survey studies, interviews, and/or focus groups;

and intervention studies) to demonstrate the impact of resilience-promoting strategies on student learning in primary and secondary education (Carey, 2002; Evans 2004; Kannapel & Clements, 2005; Kober, 2001).

This research identified five common themes among schools that were successful in serving youth from high-risk backgrounds. Among the common themes were: (1) the curriculum is rigorous, future-focused, and aligned to standards and assessments which positively influence high expectations for student performance; (2) teachers are well-prepared; (3) counselors, administrators, and teachers develop collaborative partnerships to promote student's academic success; (4) support and preventive services are provided; (5) school-based professionals, parents, and community leaders develop collaborative partnership to analyze student needs (Bennett, 2004; Carey, 2002, Ceci & Papierno, 2005; Evans, 2004; Kannapel & Clements, 2005; Kober, 2001).

These findings are consistent with Williams and Bryan (2013) and others (Byfield, 2008; Evans-Winters, 2005), who found that resilient African American students reported specific factors at school that contributed to their academic engagement and performance. These factors included: (a) having at least one caring adult at their school (e.g., teacher, counselor, coach, or mentor) who knew them well and demonstrated warmth, concern, and understanding; (b) the importance of close friendships among peers who valued education, despite similar negative circumstances which serves as a source of accountability and motivation to succeed academically; (c) the importance of teachers with high standards, but who made learning relevant, fun, and experiential, with lessons connecting curriculum to students' personal interests and lives; and (d) extracurricular

school activities (e.g., athletics, academic clubs, and social organizations) that rounded out their school involvement and contributed to their academic success.

Similarly, Marsh, Chaney, and Jones (2012) investigated the role of resilience when interviewing 16 African American students and analyzing data from approximately 100 African American students who attended a highly selective and diverse high school. They found that many African American students enter high school with negative feelings of intimidation and a fear of not identifying with African American culture because of academic success. Many students were able to work through these feelings by connecting with other African American students in clubs within the school that focus on racial and ethnic affirmation, as well as clubs that reaffirm religious values. The participants in the study placed racial and ethnic identity as a high priority as part of their overall identity and the inclusion of social clubs in school seemed to strengthen the ability to achieve academic success because it was seen as complimentary to their identity.

Cunningham and Swanson's (2010) study of 206 African American high school students revealed that African American students who perceived that the school supports them-defined as how much they felt the adults within a school believed in their ability to achieve academically, have a high sense of academic resilience. Likewise, Williams and Bryan (2013) interviewed eight African American youth who were academically successful and found that a supportive academic peer culture and involvement in extracurricular activities contributed to resilience.

Community Protective Factors. Similar to school environments, urban communities can provide an abundance of resources to support the educational resilience

of their youth. The specific impact of community on well-being and resiliency has been a topic of interest in research (Bernard, 2004; Brennan, 2008). For example, Bernard (2004) noted that healthy communities: support families and schools; establish high expectations; and encourage active participation and collaboration in the life and work of the community. Bernard (2004) asserts that communities exert not only a direct influence on the lives of youth, but perhaps even more importantly, exert a key impact on the lives of families and schools within their domain and thus indirectly impact the outcome of children and youth. Consequently, healthy urban communities can help children and youth who live in high-risk circumstances overcome adversity to achieve academic success (Bernard, 2004; Wang, Haertel, & Walberg, 1997).

Other research involving youth participation in their communities has found that children and adolescents gain a sense of purpose as they achieve mastery in social competence, problem solving, and autonomy (Brennan, 2008). For example, Brennan's (2008) study offers a conceptual framework that merges community and youth resiliency, formed by the understanding that local disadvantages require a social support system that fosters local well-being and community agency. When African American youth are encouraged to become part of the community-development process, they experience a greater sense of personal resilience as the community improves (Barrow, Armstrong, Vargo, & Boothroyd, 2007; Brennan, 2008; Wang, Haertel, & Walberg, 1997).

Other studies have documented that neighborhoods can foster resilience among youth with regard to: (a) safe recreational facilities, educational and employment opportunities (Winfield, 1994); (b) supportive adults and organizations at the home, school, and community levels (Bowen & Chapman, 1996); and (c) the presence of social

organizations that provide for healthy human development, including religious institutions, and job training opportunities (Williams & Bryan, 2013).

Summary of Literature Review

The goal of this chapter is twofold. First, to review relevant literature regarding the experiences of the many African American learners. The second goal is to provide an overview of literature that supports the academic resilience concept. In sum, academic resilience research helps to reframe how professionals perceive adverse environmental conditions or challenges experienced during childhood across disciplines (Morales, 2010). Specifically, common links throughout all of the research presented were the importance of individual characteristics or personal protective factors (e.g., strong motivation, high self-concept, and good work ethic) and external protective factors (e.g., encouragement and expectation from peers, families, schools, and communities). These factors serve as a safety net to support resiliency among African American youth (Esquivel, Doll, & Oades-Sese, 2011; Morales, 2010; Williams & Bryan, 2013). As with family and school, the community also supports the positive developments of African American youth. Among this group, there is a need for support beyond the classroom and into their community. Educational stakeholders should adopt a systemic approach for evaluating various aspects of students' lives to better utilize multiple resources to solve problems in the school setting (Bryan & Henry, 2008; Morales & Trotman, 2011).

After combing through this literature, it is clear that more research is necessary to further examine how the interplay of protective factors (e.g., family, school, and community) may contribute to positive academic outcomes among African American high school students. Previous empirical studies embracing the academic resilience approach lacked a solid theoretical basis. Thus, this study will use Bronfenbrenner's Ecological System Theory to explain the processes related to academic resilience. Bronfenbrenner argued that human development processes could explain the relationship between an individual and their environment. To that end, the present study was designed to concentrate on the understanding of protective factor processes (e.g., the interaction between individual, family, and community) and how these factors are associated with academic resilience. A description of the study is presented in the subsequent chapters.

Chapter 3: Methodology

Data

The present study is quantitative and correlational in nature. The data for the present study came from the 2002-2006 ELS. The base year ELS of 2002 is a national sample of students progressing from Grade 10 in 2002 through high school and transitioning on to postsecondary or the workforce in 2006. This dataset is unique in two ways. First, it is longitudinal, meaning the same individuals were surveyed repeatedly over time. Second, it is multilevel, meaning that information was collected from students nested within schools. Data was first collected in 2002 when surveys were administered to students, their parents, math and reading teachers, and school administrators. The first follow up was in 2004 and the second follow up was in 2006. Student assessments were collected in math (Grades 10 and 12) and in reading (Grade 10 only). For the purpose of the present study, the base year sample of students (academic year 2001-2002) is used due to the amount of missing data during the follow-up years of 2004 and 2006 and the richer information of the base year data (e.g., reading achievement available only in the base year).

During the base year (Grade 10 in 2001-2002), ELS employed a stratified random sampling approach (i.e., a two-stage sample selection) to obtain a national probability sample of 15,362 students from 752 schools. In the first stage, a sample of schools with tenth graders in the spring of 2002 were randomly selected based on nine U.S. Census divisions (e.g., East, South, and Central) and metropolitan status (i.e., urban, suburban, and rural) across the United States. Approximately 800 schools (600 public schools and 200 private schools including charter, Catholic, and other private schools) were obtained.

In the second stage, each sampled school provided an electronic list of tenth grade students.

Approximately 26 sophomores from each participating public or private school were randomly selected with consideration of racial-ethnic strata. ELS calculated sampling weights for students in the data. As a panel survey, ELS measured the same students several times during the process of the whole survey. ELS constructed seven categories to measure race-ethnicity with one of them labeled as *Black, African American, Non-Hispanic*. This category contained 2,020 students from 463 schools. This was the sample for the present study. One of the strengths of ELS is its oversampling of minority students. Such a large sample of African American students is rather rare in the research literature and represents a major research opportunity for the present study. Although this category includes both Black but not African American and African American students, the category was labeled as African American because these two categories of students share much more similarities than differences, especially when considering their schooling experience. This practice simplifies the expression but does invoke certain caution especially when interpreting and applying the findings of the present study.

Academically Resilient African American Students

To identify academically resilient students within this sample of African American students, the author worked with the whole ELS sample of students. The 50th percentile of the combined reading and mathematics scores was calculated for the whole ELS sample to identify students with above average academic performance. The percentile score was 50.97. Using this percentile score on the initial sample of 2020

African American students, 438 were identified as academically resilient African American students. The cut-off standard of the 50th percentile is obvious quite liberal, and the 75th percentile was indeed initially considered as the cut-off point.

Unfortunately, the 75th percentile score of 57.81 identified only 125 of 2020 African American students as academically resilient, deemed too small in number and hardly fruitful for data analysis. A dependent variable (ABOVE) was created to represent African American students with score above the 50th percentile in the combined mathematics and reading achievement (again relative to the entire ELS sample).

There are two reasons for using the 50th percentile as the cut-off point to define academically resilient students. First, students above this cut-off point are often referred to as proficient or on grade level in academic performance (Bandeira de Mello, Blankenship, & McLaughlin, 2009). Second, when the cut-off point is closer to the center of the achievement distribution to form two categories of academic competence, accuracy of classification tends to be optimal (e.g., Lee, Hanson, & Brennan, 2002; Young & Yoon, 1998).

Statistical analysis would be performed comparing this group of tenth grade academically resilient African American students (whom were average to high performing in the combined measure of reading and mathematics from the perspective of the entire ELS sample) with other African American students. Protective factors were sought in data analyses that were associated with academic resilience among African American students. In summary, the logic of the present study is to emphasize that African American students are a disadvantaged racial-ethnic group in schooling and those who are shoulder to shoulder with students from other racial-ethnic groups by performing at the average to high level are academically resilient with certain protective factors collectively at both family and school levels. Therefore, the identification of these protective factors was the main task of the present study.

Outcome Measure

From the previous discussion, one can see that academic resilience was measured on a national level by creating a composite measure of academic achievement (combined standardized reading and mathematics scores) based on the entire ELS sample. This composite variable had a 50th percentile score of 50.97 that allowed for the identification of academically resilient tenth grade African American students at the national level. Stated differently, the composite outcome measure (ABOVE) was created to represent students who scored at or above the 50th percentile in the combined measure of mathematics and reading relative to the entire ELS sample. This dependent variable is dichotomous in nature in that it identified whether or not an African American student had a membership to the *average to high performing group* (i.e., the academically

resilient group). The next section will discuss how the reading and mathematics measures were established in the ELS 2002 dataset.

In ELS, reading measures simple inferences, reproduction of detail, comprehension, and inference (evaluation). Passages were adopted from the 2000 Programme for International Student Assessment (PISA) reading scale. The reading tests consisted of reading passages of one paragraph to one page in length, followed by three to six questions based on each passage. Questions were categorized in a multiple choice format. Regarding mathematics, ELS (2002) adopted the 1988 National Education Longitudinal Study (NELS) mathematics scale that included arithmetic, algebra, geometry, data (probability), and advanced topics that were divided into process categories of skill, knowledge, understanding, comprehension, and problem solving. Questions were categorized in a multiple-choice format.

All tests were administered in two stages. In the first stage, 15-question mathematics section were followed by 14 reading questions. The answer sheets were scored by survey administrators who then assigned each student to a low, middle, or high difficulty second stage form in each subject, depending on the student's number of correct answers in the routing test. The second stage consisted of three forms of tests ranging from low difficulty (15 mathematics and 16 reading questions), middle difficulty (27 mathematics and 17 reading questions) to high difficulty (27 mathematics and 15 reading questions). The proficiency levels are hierarchical in the sense that mastery of a higher level typically implies proficiency at lower levels. This practice effectively prevents a whole test from being too easy or too difficult for students to answer.

For each domain (subject) of reading and mathematics, ELS (2002) used the item response theory (IRT) to process student performance scores. IRT uses patterns of correct and incorrect responses to obtain ability estimates that are comparable across various test forms. This allows for estimating a student's ability taking into account of the question's difficulty, discriminating ability, and the guessing factor. Unlike raw number-correct scoring, IRT uses the pattern of responses to estimate the probability of correct responses for all test questions (see ELS, 2002). Scores for reading and mathematics are estimates of the number of items students would have answered correctly if they had responded to all 70 questions related to the math item pool and 51 questions in the reading item pool. The ability estimates can be used to calculate the student's probability of a correct answer for each of the items in the pools. The probabilities are summed to produce the IRT-estimated number correct score. According to ELS (2002), the test reliabilities were .86 for reading and .92 for mathematics.

Next, standardized *T*-scores are calculated to provide a norm-reference measurement of achievement. In other words, estimates of achievement are relative to the population as a whole. For example, a high *T*-score for a particular subgroup indicates that the group's performance is high in comparison to other groups. This provides information on status compared to students' peers, while the IRT-estimated number correct scores can only provide an indicator of the extent to which an individual or subgroup ranks on the national average (ELS, 2002). These standardized scores are transformations of the IRT ability estimates rescaled to a mean of 50 and a standard deviation of 10 (ELS, 2002). These were the mathematics and reading scores used in the present study.

The combined measure in the present study was the average of the mathematics and reading standardized scores re-standardized to a national mean of 50 and a standard deviation of 10. The present study then created a composite variable labeled as ABOVE to be used as the dependent or outcome measure denoting academic resilience.

Independent Measures

The variables selected below represent the student and school levels nested with Bronfenbrenner's (1986) ecological model, which serves to recognize the interactions among students to their ecosystem (i.e., physical environment). Because of the multilevel nature of data, there were two categories of independent or predictor variables: student-level and school-level variables.

Student-level variables. Student-level variables were categorized into personal background variables and individual protective factors that have the potential to promote academic resilience among students and protect students against academic failure.

Personal background variables included: gender, family SES, number of parents, and number of siblings. Individual protective factors included student school involvement, student community involvement, student's combined mathematics and English self-efficacy, student expectation, parent expectation, teacher expectation, parent monitoring, teacher and student relationship, peer academic commitment, and number of hours per week student spent on homework. Because their individual and family characteristics (e.g., gender and SES) can typically explain differences in academic achievement among students the number of parents, and number of siblings are included as variables at the student-level for explanatory and mainly control purposes (e.g., Ma & Klinger, 2000). These variables provide a sufficient control of individual and family background (Ma &

Klinger, 2000). Gender is coded as a dichotomous variable comparing males (=1) with females (=0). Family SES was a standardized composite variable constructed (by ELS) based on a student's reported household possessions as well as a corresponding parent's reported education and occupation (Bozick, Lauff, & Wirt, 2007). Variables descriptive of family composition were obtained from the parent questionnaire. There were two categories for family structure (one parent, both parents). A dummy variable was created to represent the number of parents comparing single parents (=0) with both parents (=1). The number of siblings served as a continuous variable based on the number of children within a family.

Among individual protective factors, peer academic commitment was measured with a scale of three items (BYS25EA, BYS25EB, and BYS23EC) with a Cronbach's alpha = .93. The composite variable of peer academic commitment was created by taking the average of valid items (i.e., items with responses) from the three items above. Similarly, English self-efficacy was measured of five items (BYS89C, F, I, K, and M), Cronbach alpha = .84. Math self-efficacy was measured with a scale of two items (BYS25 EA-EB), Cronbach's alpha = .93. For the purpose of this study, these two composite variables were aggregated to measure the average level of a student's self-efficacy. Appendix A represents a description of these student level variables.

School-level variables. School-level variables were categorized into school contextual variables and school climatic variables that are institutional protective factors with the potential to promote academic resilience among students and protect students against academic failure. School contextual variables were: school (enrollment) size, school type, school location, and school percentages of students on free or reduced lunch.

School size, school type, and school location were used as categorical variables. School size had three categories: small, midsize, and large schools. Dummy coding was applied to school size to create two dummy variables of large schools and midsize schools with small schools as the reference. A variable measuring the percentage of students eligible for a free or reduced-price lunch program can be used to measure the social class of a school (i.e., a school's socioeconomic composition or school SES). In ELS, this variable was categorical of low, medium, and high SES. Dummy coding was applied to create two dummy variables of mid and high school SES with low school SES as the reference. School location consisted of three categories of schools (urban, suburban, and rural). Coding school location created two dummy variables of rural and suburban with urban schools used as the reference. These variables provide a sufficient control of school context background (Ma & Klinger, 2000) and were used for explanatory but mainly control purposes.

Meanwhile, school climate variables included combined student and administration perception of school safety, teacher-student relationship, principal leadership, parental involvement, school resources (e.g., number of school mentoring and community sponsored activities), and school effort to offer remedial services. Most of these school climate variables are composite variables made of multiple individual items. The procedure to create these composite variables was the same as that used to create student-level composite variables.

Among school level protective factors, school safety referred to the perceptions of students (BYSCSAF2) and administrators (BYSCAF1) of how safe a school is for learning. The ELS staff constructed the student's perception of safety composite variable

BYSCSAF2 with three items (BYS20J, M, N), Cronbach's $\alpha = .64$. The ELS staff also constructed the administrator's perception of safety composite variable (BYSCAF1) using 19 items (BYA49A-S), Cronbach's $\alpha = .88$. In this study, these two variables were aggregated to measure the average perception of safety within a school.

Academic climate is referred to as the perception of school administrators on the school's academic climate with five items (BYA51A-E) (Cronbach's $\alpha = .86$).

Teacher-student relationship is referred to as the student perception of positive student-teacher relations with a number of four items (BYS20A, BYS20E-H) (Cronbach's $\alpha = .73$).

Further, at the school-level, nine variables were created by the addition of single items based on the yes or no responses. Among the nine variables were: 1) Principal leadership which is referred to as the perception of the school administrator's level of influence within the school; 2) Parental involvement which is referred to as how involved parents are in schools (e.g., a member of a parent-teacher organization, attend parent-teacher conferences, or act as a volunteer); 3) Parent monitoring homework which is referred to as how often a parent checks to see that homework is completed; 4) Parent Expectation which is referred to as how far a parent thinks their student will get in school and beyond (e.g., high school diploma, associate's degree, bachelor's degree, etc.); 5) Teacher expectation which is referred to as how far a teacher believes his/her student will get in school; 6) School effort which is referred to as the number of remedial services offered in a school; 7) School resources are referred to as a perception of how much of student learning is hindered by a shortage of school resources; 8) School Involvement which is referred to as the number of activities a student has participated in during the

academic school year (2001-2002); and 9) Community involvement which is referred to as how often a student spends time volunteering outside of school. Appendix B presents descriptive detail on these school variables.

Statistical Procedures

The primary statistical technique in the present study was HLM or multilevel modeling due to the nature of the multilevel ELS data. Data analysis was performed with the HLM software (HLM7) by Raudenbush, Byrk, and Congdon (2011). A two-level hierarchical linear model (HLM) (Bryk & Raudenbush, 2011) was used to identify individual (personal) and environmental (collective) protective factors that are associated with academic resilience. For the present study, HLM is the best statistical approach for two reasons. First, HLM accommodates the data hierarchy that exists in the ELS data (i.e., students nested within schools). Second, the analytical framework of HLM perfectly accommodates the conceptual distinction between personal traits and collective traits for the promotion of academic resilience.

Specifically, the HLM model has two levels with students at level-one and schools at level-two. Variables at the student-level accommodate personal traits, while variables at the school-level accommodate collective traits. As a result, the HLM model examines the effects of student-level variables and school-level variables on academic resilience (in terms of average to high performing status). Because the dependent variable is dichotomous, a two-level logistic HLM model was used to examine the characteristics of African American students (in terms of personal and collective traits) that results in being an academically resilient member of the average to high performing group.

The Null Model. As described in Ma et al.'s (2008) study, for each HLM analysis, the first stage of the analysis would produce the null model with no independent (explanatory) variables entered into the model at the student (Level 1) or school (Level 2) levels. In the null model, shown below, the dependent or outcome variable is labeled as Above and there were no independent variables at any level. This dependent variable is dichotomous, coded as 0 = non-academically resilient and 1 = academically resilient. This calls for a two-level logistic (i.e., Bernoulli) HLM model with students nested within schools to model the likelihood of a given event occurring. The Level 1 model is about students and is represented as the following:

$$Prob(Above_{ij}) = \frac{1}{1 + e^{-z}}$$

$$Z = \beta_{0j}$$

where $Prob(Above_{ij})$ is the probability that student i in school j will fall into the academically resilient category. Z functions as a connector to reduce the complexity of the Level-1 equation. β_{0j} is the intercept representing (i.e., can be turned into) the average probability of academic resilience within school j . Note that there is no error term at Level 1 because the error variance is fixed to 1 to allow the model to produce unique estimates.

Level 2 is about schools and takes into account the coefficient associated with the intercept (β_{0j}) which is formulated as a random variable whose variation can be predicted by certain school characteristics. Since there are no explanatory variables at Level 2 the model is represented as the following:

$$\beta_{0j} = \gamma_{00} + \mu_{0j}$$

where β_{0j} is the intercept for school j representing (i.e., can be turned into) the average probability of academic resilience within school j . γ_{00} is the grand mean probability representing (i.e., can be turned into) a national average of academic resilience among African American students. Each school's deviation from this grand mean probability is captured by the μ_{0j} respectively. Apart from producing national estimates of academic resilience, the null model is also useful to serve as a benchmark to compare to other models.

The Student Model. After establishing the null model, a level-one (student) model was created. The intent is to build an individual (student) model to examine the effects of individual student characteristics on academic resilience. All 13 variables were entered, as grand-mean centered, into the level-one model. The following procedures were used to establish the level-one model. First, each student level variables were added separately to the model to determine whether each variable has significant absolute effect on academic resilience independent of other variables. Second, interaction variables were created among key student characteristics (e.g., between family SES and peer influence). Each interaction variable was also tested for its absolute effect with the presence of the main effects of the two variables forming the interaction. Third, all variables with statistical significant absolute effects were added to the model in combination to determine whether each variable has significant relative effects on academic resilience in the presence of other variables. Non-significant variables were eliminated one by one, starting with the one with the largest p value, until only those with a p value less than .05 remained in the level-one model (this process is necessary to develop a full model as well). The level-one model can be expressed as the following:

$$Prob(Above_{ij}) = \frac{1}{1 + e^{-z}}$$

$$Z = \beta_{0j} + \sum_{p=1}^{13} \beta_{pj} X_{pij}$$

where β_{0j} is the intercept representing (i.e., can be turned into) the average probability of academic resilience within school j adjusted over student characteristics (student level variables). The summation sign in the student (level-one) model indicated the number of student level variables used in the model. Here we have 13 student level variables at

level one, indicated by the subscript p ($p = 1, 2, \dots, P$). The slope or coefficient, β_{pj} , associated with X_{pij} , measured the relationship between the probability of academic resilience and the student-level variable (the effects of student-level variable on academic resilience) within school j . It is often appropriate to assume that student level variables have the same influence across schools (see Ma et al.'s, 2008). This means that individual differences (e.g., SES, race) associated with each student-level variable in the probability of academic resilience are the same across all schools. The level 2 model (as part of the student model) reflects this assumption.

$$\beta_{0j} = \gamma_{00} + \mu_{0j}$$

$$\beta_{pj} = \gamma_{p0} \quad (p = 1, 2, \dots, 13)$$

The Full Model. The next stage in the HLM analyses was to create a full model by adding the level two model or the school model. The intent of the school model was to examine the effects of school characteristics on academic resilience. All 15 variables were entered, as grand-mean centered, into the level-two model. The following procedures were followed. First, school level variables were added separately to determine whether each variable had significant absolute effect on academic resilience independent of other variables. This process allowed for the elimination of least statistically significant school-level variables whether or not variables were school context or school climate variables. Second, school level variables with statistical significant absolute effects were added back to the model in combination to determine whether each variable had significant relative effects on academic resilience in the presence of other variables. Non-statistically significant school-level variables were eliminated one by one, starting with the one with the largest p value, until only those with a p value less than .05 remained in the level-two model.

The level one model remained the same as in the student model (with the same meanings for all of its components):

$$Prob(Above_{ij}) = \frac{1}{1 + e^{-z}}$$

$$Z = \beta_{0j} + \sum_{p=1}^{13} \beta_{pj} X_{pij}$$

The level two model was adopted directly from the student model. Nonetheless, school level variables were used to model the intercept.

$$\beta_{0j} = \gamma_{00} + \sum_{q=1}^{15} \gamma_{0q} Z_{qj} + \mu_{0j}$$

$$\beta_{pj} = \gamma_{p0} \quad (p = 1, 2, \dots, 13)$$

where β_{0j} is the intercept representing (i.e., can be turned into) the average probability of academic resilience within school j adjusted over student characteristics. γ_{00} is the grand mean probability of academic resilience adjusted over both student and school characteristics. School-level variables were collected within the summation sign. Here we have q school level variables denoted as Z_{qj} with subscription q ($q = 1, 2, \dots, 15$). The slope or coefficient, (γ_{0q}) is associated with Z_{qj} , which measured the effects of school-level variables on academic resilience) and μ_{0j} represents the variance of residual errors unique to a school. Finally, as discussed earlier, student level variables are assumed to have the same influence across schools. The same treatment of level one variables remained in the full model.

The full model can be finally summarized as the following:

$$Prob(Above_{ij}) = \frac{1}{1 + e^{-z}}$$

$$Z = \beta_{0j} + \sum_{p=1}^{13} \beta_{pj} X_{pij}$$

$$\beta_{0j} = \gamma_{00} + \sum_{q=1}^{15} \gamma_{0q} Z_{qj} + \mu_{0j}$$

$$\beta_{pj} = \gamma_{p0} \quad (p = 1, 2, \dots, 13)$$

Proportion of Variance Explained. The proportion of variance explained is often used as an indicator of the model performance (i.e., how well the model predicts). This idea can be utilized for the HLM models as well. What is unique for the logistic HLM models is that the level one variance (student level) is fixed at 1. So the proportion of variance explained can only be meaningfully calculated at the level two (school level), using a formula from Raudenbush and Bryk (2002) shown below.

$$(null - full)/null$$

where the null model is Above designated as the level 1 outcome and there are no other predictors. This intercept only model or one-way ANOVA with random effects addresses the question of is there a (level 2) effect on the (level 1) intercept of the probability of academic resilience. The output is used as a baseline for comparing models that are more complex. The full model is a type of hierarchical linear model in which, for two levels, there are predictors at both levels, and both level 1 intercept and the level 1 slopes are predicted as random effects. The overall results of the test of the full model is reflected in the likelihood ratio test of the difference in variations between models.

Finally, the full model examines the effects of both student-level and school-level variables on academic resilience among African American students. As a result, this model provides a fairly comprehensive look at the academic resilience phenomenon among African American students.

Chapter 4: Results

This chapter is organized in four parts: (a) report on preliminary analysis (i.e., data preparation), (b) descriptive statistics of the data set (Tables 1 and 2), including correlations among the variables (Tables 3 and 4), (c) the results of analyses carried out to answer the research questions, and (d) special results derived from the final model concerning a number of specific issues related to academic resilience of African American students. The study was quantitative and correlational in nature. Quantitative studies make use of statistics to draw conclusions about a sample and, by inference, the population from which the sample was drawn. Correlational studies examine the relationships between two or more variables without assigning causality.

Preliminary Analysis

Prior to analysis, the data were screened in SPSS version 23 for data accuracy (e.g., missing values) following the processes recommended by Tabachnik and Fidell (2006). The preliminary analysis also prepared for the application of multilevel techniques to examine the relationship between student and school level variables and academic resilience.

The first step of the preliminary analysis was to compute frequency statistics of all variables in order to verify abnormal and missing data. Missing values were found at both student and school levels. Because the HLM program allows missing data at level 1 (student level in this study), the focus of dealing with missing data was at level 2 (school level in this study). The HLM program disallows missing data at level 2. Missing data were from 0% to 33% across school-level variables. Given that the African American student sample of 2,020 could not afford heavy listwise deletion, which reduces the

sample size severely when some schools were deleted, missing data imputation was performed at the school level using SPSS Missing Data Analysis. Specifically, the EM algorithm was applied to impute missing data at the school level. This practice resulted in the final sample of African American student remaining unchanged from 2,020 with full data at the school level.

Descriptive Statistics

The means and standard deviations for the outcome (dependent) variable academic resilience (ABOVE) and explanatory (independent) student and school-level variables are shown in Tables 1 and 2. For Table 1 on student-level variables, coding information is provided for the dichotomous variables. In the case of gender, female = 0 and male = 1. In the case of family composition, single parent = 0 and both parents = 1. In terms of parent homework monitoring, no monitoring = 0 and monitoring = 1. In terms of student community involvement, no community involvement = 0 and community involvement = 1. Means for the dichotomous variables are proportions of the category coded as 1. Among the African American students, 49% of them were male ($n = 1004$), and 51% were female ($n = 1016$). In terms of family composition, 53% of African American students came from a household with both parents. Among African American students, 77% had parents who monitored their homework. Further, only 29% of African American students were involved in their community outside of school.

Other student-level variables are in their original scales; family SES, school mean SES, student, parent and teacher expectation, and math and reading self-efficacy scores. For all variables that are indices at both student and school levels, standardization was done using the whole national sample so that zero represented the national mean on each

variable at either student and school level. Specifically, out of a range of -1.78 to 1.80, the African American students had, on average, a family SES score of -.22, somewhat below the national average. Out of a scale of 0 to 7, African American students had between 1 and 2 siblings (i.e., 1.54). In terms of academic expectations, out of a scale of 10 to 21 (indicating years of education), the African American students had an expectation score of 16.28. In other words, African American students on average expected to attend college and complete a 4-year degree. Similarly, out of a scale of 12 to 21 (indicating years of education), African American students had a parent expectation score of 17.59. Thus, parents of the African American students, on average, expected their students to attend college and complete a 4-year degree. However, out of the expectation scale of 10 to 21 (indicating years of education), the African American students had a teacher expectation score of 14.56. Consequently, teachers on average expected the African American students to complete a 2-year college degree. In the case of peer expectation (measured by how important grades were among peers), out of a scale of 0 to 3, the African American students had a peer expectation score of 1.71. As a result, the African American students on average had peers that thought of grades as somewhat important. In terms of time spent on homework per week, out of a scale of 0 to 20, the African American students had a homework time per week score of 6.65. Therefore, the African American students on average spent approximately 6.65 hours per week on schoolwork at home.

In terms of student involvement in school-sponsored activities (e.g., band, chorus, sports, or academic clubs), out of a scale of 0 to 8, the African American students on average had a student school involvement score of .88, indicating very inactive

participation in school activities. Lastly, in terms of self-efficacy perception in math and English self-efficacy, out of a range of -2.01 to 1.77, the African American students on average had a score of .05, slightly about the national average.

For Table 2 on school-level variables, coding information is provided for the dichotomous variables. In the case of school size, there were two variables: mid-size schools = 1 (vs. small schools = 0) and large schools = 1 (vs. small schools = 0). In terms of school type, there were two variables: public schools = 1 (vs. private schools = 0) and Catholic schools = 1 (vs. private schools = 0). In terms of school location, there were two variables: urban schools = 1 (vs. rural schools = 0) and suburban schools = 1 (vs. rural schools = 0). In the case of school SES, there were two variables: low SES = 1 (vs. high SES schools = 0) and mid SES schools = 1 (vs. low SES schools = 0). In the case of parental involvement, parental involvement = 1 and no parental involvement = 0. In terms of the schools' effort to offer remediation services, school remediation effort = 1 and no school remediation effort = 0. Means for the dichotomous variables are proportions of the category coded as 1. Among the schools that African American students attended, 25% were mid-size schools and 7% were large size schools. Most of the schools (77%) were in a public setting and 13% were Catholic schools. In terms of school location, 33% of schools were located in urban areas while 48% of the schools were located in suburban areas. In the case of school SES, 9% of schools had low SES and 24% of schools had mid SES.

Other school-level variables are in their original scales: school resources, academic climate, school safety, teacher-student relationship, and principal leadership. As such, in a scale of 1 to 4 the schools to which African American students attended had

a school resources score of 1.73. As a result, these schools had relatively low school resources. In terms of academic climate, in a range of -.63 to .27, the schools to which African American students attended had an academic climate score of .01, very much at the national average. In the case of school safety, out of a range of -.98 to .94, the schools that African American students attended had a school safety score of .04, slightly above the national average. In terms of teacher-student relationship, out of a range of -1.05 to 2.18, the schools that African American students attended had a teacher-student relationship score of .09, slightly above the national average. Lastly, out of a scale of 1 to 3 schools to which African American students attended had a principal leadership score of 2.58. Thus, these schools had a strong principal leadership.

Next, correlation coefficients were applied in order to examine the relationships for both student-level and school-level variables (Tables 3 and 4). In interpreting these tables, an established set of criteria was used to make judgments about the significance of the correlations (Gliner & Morgan, 2000). First, a level of $p < .05$ was used to identify those correlations that were statistically significant. Second, the correlations themselves were judged in the following manner: If the correlation was between 0.0 and 0.30, it was judged to be weak. If it was between 0.31 and 0.70, it was considered modest. If it was above 0.71, it was judged to be strong (Gliner & Morgan, 2000). For both student and school-level variables, the majority of correlations were in weak even though they were statistically significant at the .05 level. At the student-level, the largest correlation was modest in range; that is, teacher expectations correlated at .39 with the student expectations. At the school-level, three correlations were at the top of the modest range: between public and Catholic (school type, -.70), between urban and suburban (school

location, -.68), between school safety and public school setting (-.62). Overall, the data did not appear to signal collinearity among independent variables, particularly at the school level.

General Results to Answer Research Questions

RQ 1. What student and family characteristics are associated with the academic success of African American high school students? This question was addressed by including explanatory variables in the multilevel model that represents student and school experiences. Tables 5 and 6 represent the results on the effects of student-level and school-level variables on academic resilience. The effects of these variables are presented in probability terms as shown in columns labeled as *Exp*. *Exp* denotes the regression result in terms of e raised to the power of each effect, which is the expected change in probability that an event occurs associated with one unit increase in a predictor variable. This value in columns labeled *Exp* is also referred to as odds ratio. It is important to note that some variables have *Exp* greater than 1, whereas others have *Exp* smaller than 1. According to Ma, Zhang, & Johnson (2003), consistency in interpretation calls for any value smaller than 1, for its reciprocal (which is greater than 1) used in the interpretation of those variables. As such, the term *times* is used to describe the numerical difference in probability.

Absolute effects of student characteristics on academic resilience. When the effects of a variable are estimated in the absence of other variables, these effects are referred to as absolute effects. Table 5 presents the absolute effects of student-level variables on the probability of academic resilience among African Americans in Grade 10. Some student characteristics by themselves show statistically significant absolute

effects or improve the likelihood of academic resilience. Among the ones with statistical significance, if two African American high school students were one unit apart in their academic expectation, the student with the higher expectation was 1.24 times more likely to be academically resilient than the student with the lower expectation. Similarly, if two African American high school students were one unit apart in their parent expectation, the student with the higher parent expectation was 1.13 times more likely to be academically resilient than the student with the lower parent expectation. Likewise, if two African American high school students were one unit (1 hour) apart in their time spent on homework per week, the student with the higher homework time spent per week was 1.12 times more likely to be academically resilient than the student with the lower time spent on homework per week. Lastly, if two African American high school students were one unit apart (one count) in their school involvement activities, the student with the higher number of school involvement activities was 1.16 times more likely to be academically resilient than the student with the lower school involvement activities.

Interaction effects of student-level variables on academic resilience. Table 6 shows the interaction effects of student-level variables on the probability of academic resilience among African Americans in Grade 10. Among six pairs of student-level variables examined for interaction effects, only one pair was statistically significant. This result referred to the interaction between African American student's family SES and student (academic) expectation. Therefore, the effects of family SES on the academic resilience depends on the level of student (academic) expectation. If two African American high school students were one unit apart in their family SES, for the student with the lower SES, one unit increase in student academic expectation would make the

student 1.21 times (e raised to the power of .19 where .19 was the coefficient of student academic expectation) more likely to be academically resilient; for the student with the higher SES, one unit increase in academic expectation would make the student 1.19 times (e raised to the power of $.19 - .02 = .17$ where -.02 was the coefficient of the interaction between family SES and student academic expectation) more likely to be academically resilient.

RQ 2. What school contextual and climate characteristics are associated with academic resilience of African American high school students?.

Absolute effects of school characteristics on academic resilience. Table 7 presents the absolute effects of school-level variables on the probability of academic resilience among African Americans in Grade 10. Some school characteristics by themselves show statistically significant absolute effects or improve the likelihood of academic resilience. Among the ones with statistical significance, African American students attending a private high school were 1.16 times less likely ($1 \div .86$) to be academically resilient than African American students who attend public high schools. Meanwhile, African American students attending Catholic high schools were 3.52 times more likely to be academically resilient than African American students in private high schools. Consider two high schools one unit apart in academic climate, African American students in the high school with higher academic climate were 16.28 times more likely to be academically resilient than African American students in the high school with lower academic climate! Similarly, consider two high schools one unit apart in school safety, African American students in the high school with higher perception of

school safety were 2.53 times more likely to be academically resilient than African American students in the high school with lower perceptions of school safety.

Relative effects of student and school characteristics on academic resilience.

When the effects of a variable are estimated in the presence of other variables, these effects are relative effects. Table 8 presents the relative effects of student-level and school-level variables on the probability of academic resilience among African Americans in Grade 10. Table 8 also represents the final full model of the multilevel analysis. The full model was created by entering only statistically significant variables at the student and school level. Some student and school characteristics show statistically significant effects or improve the likelihood of academic resilience even in the presence of other student and school characteristics. At the student level, first of all there were statistically significant interaction effects between African American student's family SES and peer (academic) expectation. Therefore, the effects of family SES on the academic resilience depend on the level of peer (academic) expectation.

Thinking in terms of two African American high school students were one unit apart in their peer academic expectation, for the one with the lower peer academic expectation, one unit increase in SES would make the student 3.21 times more likely to be academically resilient; for the one with the higher family SES, and higher peer academic expectation, one unit increase in SES would make the student 2.48 times (e raised to the power of $1.17 - .26 = .91$) more likely to be academically resilient. In terms of time spent on homework per week, if two African American high school students were one unit (1 hour) apart in their time spent on homework per week, the student with the higher homework time spent per week was 1.12 times more likely to be academically resilient than the student with the lower time spent on homework per week. In terms of teacher expectation, (how far the student will go in their educational attainment), when comparing two African American high school students one unit apart in their teacher expectation, the student with higher teacher expectation was 1.67 times more likely to be academically resilient than students with lower teacher expectations. Lastly, in terms of student school involvement, if two African American high school students were one unit (one count) apart in their school involvement activities, the student with the higher number of school involvement activities was 1.67 times more likely to be academically resilient than the student with the lower school involvement activities.

At the school level, consider two high schools one unit apart in academic climate, African American students in the high school with higher academic climate were 7.44 times more likely to be academically resilient than African American students in the high school with lower academic climate. Likewise, consider two high schools one unit apart in school remediation efforts. African American students in the high school with lower

school remediation efforts were 4.54 times more likely ($1 \div .22$) to be academically resilient than African American students in the high school with higher remediation efforts.

Proportion of Variance Explained. For the above final (full) multilevel logistic model, model performance or model-data-fit can be demonstrated as an improvement over the intercept-only (null) model in terms of variance in the probability of African American students being academically resilient. As stated in Chapter 3, the intercept-only model serves as a good baseline because it pertains no predictors. An improvement over this baseline is examined by the R^2 index for the final model, which is the proportion of the variance in the probability of academic resilience that can be explained by predictors in the full model. Using the formula provided in Chapter 3 (Ma et al., 2008; Raudenbush & Byrk, 2002), the proportion of variance explained was calculated. In the regular two level model (e.g., students nested within schools), a R^2 can be determined at both student and school levels. In the case of two level logistic model, the student level variance is fixed at 1 as a condition for the model to produce results. Therefore, R^2 is calculated only at the school level as a measure of model performance. It shows how well the model taps into the variance in the average probability of African American students being academically resilient. The percentage of the variance accounted for was 56%. In other words, the model accounted for a quite reasonable amount of variance, indicating that the model was adequate in explaining variation in academic resilience among schools.

Special Results to Enhance Research Questions

The previous section concerned the final (full) multilevel logistic model with the interpretation of the effects of individual (student) and collective (school) characteristics on the probability of academic resilience of African American students. This final

multilevel logistic model in its combined format (i.e., bring the level 2 models into the level 1 model) can be expressed as

$$Prob(Above_{ij}) = \frac{1}{1 + e^{-z}}$$

$$Z = (-2.14) + (2.01)*ACCLIM_j - (1.51)*SCHEFF_j + (1.17)*SES_{ij} + (.14)*HWPWK_{ij} + (.49)*SCINV_{ij} + (.51)*TEXP_j + (-.26)* (PE_{ij} \times SES_{ij})$$

This combined model reveals several special findings important and informative to a better understanding of academic resilience among African American students. This section aims to discuss these special issues. All of these issues were based on this combined multilevel logistic model.

Predicting the National Probability of Academic Resilience Among African American Students

One of the functions of the combined multilevel logistic model is to predict the national probability of academic resilience among African American students. The intercept in the combined multilevel logistic model is a measure of the national average probability of academic resilience among African American students (based on a national sample). Because student and school level variables are centered, this probability pertains to a typical African American student with nationally average characteristics in terms of the significant student and school characteristics. The intercept was -2.14, corresponding to

$$Prob = \frac{1}{1 + e^{-(-2.14)}} = 0.11.$$

The probability of academic resilience for the typical African American student with nationally average characteristics was 0.11, indicating a rather low probability.

Upper and Lower Boundary of African American Students Being Academically Resilient

The combined multilevel logistic model can be used to calculate the minimum and maximum in terms of the national probability of academic resilience among African American students. To calculate the maximum value, variables in the combined model with positive signs are given their maximum values and variables in the combined model with negative signs are given their minimum values. This calculation takes information from descriptive statistics of the variables in the combined model (Tables 1 and 2). The Z was rearranged to operationalize the interaction effect (so that SES took the maximum and PE took the minimum).

$$Z = (-2.14) + (2.01)*ACCLIM_j - (1.51)*SCHEFF_j + SES_{ij}*(1.17 - .26*(PE_{ij})) + (.14)*HWPWK_{ij} + (.49)*SCINV_{ij} + (.51)*TEXP_j$$

The calculation for the upper boundary is

$$Z = (-2.14) + (2.01)*(.27) - (1.51)*(.00) + (1.80)*(1.17 - .26*(0)) + (.14)*(20) + (.49)*(1) + (.51)*(21)$$

As a result, the upper boundary for academic resilience is 14.51, which translates to a probability of 17%.

$$Prob = \frac{1}{1+e^{-(14.51)}} = 0.17.$$

To calculate the minimum value, variables in the combined model with positive signs are given their minimum values and variables in the combined model with negative signs are given their maximum values. This calculation also takes information from descriptive statistics of the variables in the combined model (see Tables 1 and 2). Similar to the maximum case,

$$Z = (-2.14) + (2.01)*ACCLIM_j - (1.51)*SCHEFF_j + SES_{ij}*(1.17 - .26*(PE_{ij})) +$$

$$(.14)*HWPWK_{ij} + (.49)*SCINV_{ij} + (.51)*TEXP_j$$

The calculation for the lower boundary is:

$$Z = (-2.14) + (2.01)*(-.63) - (1.51)*(1) + (-1.78)*(1.17 - .26*(3)) + (.14)*(0) + (.49)*(0)$$

$$+ (.51)*(10)$$

As a result, the lower boundary for academic resilience is -2.68, which translates to a probability of 6%.

$$Prob = \frac{1}{1+e^{-(-2.68)}} = 0.06.$$

Therefore, the national probability for an African American student to be academically resilient ranged from 6% to 17% based on the statistically significant student-level and school-level variables in this study.

Student and School Strategies That Nullify Negative Effects

Among all variables, only school effort is negative. How can one nullify this negative effect of school effort on the probability of academic resilience for African American students? The negative effect measured as -1.51. The positive effects were examined against this negative effect at both student and school level. At the school level, academic climate 2.01 can nullify this negative effect holding other variables in Z constant. This reduces the effect of the academic climate to $2.01 - 1.51 = 0.50$. African American students attending a school with both school effort and academic climate scored as 1 (i.e., presence of positive academic climate) were $e^{0.50} = 1.65$ times more likely to be academically resilient than African American students attending a school with school effort scored as 1 and academic climate scored as 0 (i.e., absence of positive academic climate). Similarly, teacher expectation is positive with a magnitude of .51.

That is, it takes nearly three times the effort (strength) of teacher expectation ($0.51 \text{ by } 3 = 1.53$) to nullify the negative effect of school effort.

Student-level variables can also nullify the negative effect of school effort.

Student school involvement is positive with a magnitude of 0.49. It takes nearly four times the effort of student school involvement ($0.49 \text{ by } 4 = 1.96$) to nullify the negative effect of school effort (-1.51). That is, African American students who engaged in four times as much school involvement could be immune to the negative effect of school effort. Similarly, time spent on homework per week is positive with a magnitude of .14. It takes nearly 11 times the effort of homework per week ($.14 \text{ by } 11 = 1.54$) to nullify the negative effect of school effort, which perhaps is difficult to achieve. SES related issues (including the interaction with peer expectation) were not discussed because SES is not easy to change.

Risk Factors

Risk factors are defined as conditions that increase the likelihood of a problem developing (Greene & Conrad, 2002). Note that risk factors do not guarantee that all youth will have academic problems; but risk factors may increase the opportunity for academic problems to occur (Morales, 2010). In this study, only one clear risk factor was detected, which was school effort that measures when a student fails a competency test what options and or requirements are available to the student at the school (e.g., tutoring, retake test, complete competency test preparation class, summer school, etc.). In other words, this variable indicates the remedial measures that a school prepared for academically failing students.

Protective Factors

Protective or promotor factors refer to both student characteristics and school characteristics that work against potential risk factors (Morales & Trotman, 2004). This study detected four promotors or protective factors, two at the student level and two at the school level. At the student level, the amount of time a student spent on homework per week was a statistically significant promoter of academic resilience. This may have occurred due to the parents of the African American students setting rules at home emphasizing good grades and monitoring homework completion. Additionally, student school involvement was a statistically significant promotor of academic resilience. The more African American students were involved in their school activities, the higher the odds of the student being academically resilient.

At the school level, there were two statistically significant protective or promoter factors. First, school academic climates were a statistically significant promoter of academic resilience for the African American students. Effective schools are often cited in the literature as key contributors to academic resilience. The second promoter was teacher expectation (from the student responses to survey items related to the likelihood of how far a teacher expected the student to get in school ranging from less than high school graduation through obtaining an advanced degree). The higher the teacher expectations were for African American students, the higher the odds of students being academically resilient.

The next (and final) chapter will summarize and draw further conclusions relating to the factors that influence African American high school students to become academically resilient. Recommendations will be made for future research and also practical application for this research project will be discussed.

Summary

The purpose of this study was to identify student and school characteristics that positively influence academic resilience among African American students. Following the major trend in the literature to categorize, such characteristics are noted as individual, family, school, or community based factors (this study focused on the first three). The logistic regression analyses reported in this chapter were conducted in order to determine which particular factor served as a protective factor variable to remedy risk factors and contribute the most to an African American student's odds of being academically resilient in high school. Likewise, the logistic regression analyses revealed which risk factor variables, when present, led to worrisome odds of being academically resilient.

Table 1

Descriptive Statistics for Student-level Variables

Student-Level Variables	Min	Max	M	SD
Gender (Male=1, Female=0)	.00	1.00	.49	.50
Family socio-economic status	-1.78	1.80	-.22	.67
Number of Siblings	.00	7.00	1.54	1.35
Family Composition (Single Parent=0, Both Parents=1)	.00	1.00	.53	.49
Student Expectation	10.00	21.00	16.78	2.73
Parent Expectation	12.00	21.00	17.59	2.61
Teacher Expectation	10.00	21.00	14.56	2.07
Peer Expectation	.00	3.00	1.71	1.13
Homework Time per Week	.00	20.00	6.65	4.85
Parent Homework Monitoring	.00	1.00	.77	.41
Student School Involvement	.00	8.00	.88	1.30
Student Community Involvement	.00	1.00	.29	.45
Math and English Self Efficacy (combined)	-2.01	1.77	.05	.81

Table 2

Descriptive Statistics for School-level Variables

School-Level Variables	Min	Max	M	SD
Mid-Size School (vs. Small Schools)	.00	1.00	.25	.43
Large Schools (vs. Small Schools)	.00	1.00	.07	.25
Public Schools vs. Private Schools	.00	1.00	.77	.42
Catholic Schools vs. Private Schools	.00	1.00	.13	.33
Urban Schools vs. Rural Schools	.00	1.00	.33	.47
Suburban Schools vs. Rural Schools	.00	1.00	.48	.50
Low Socioeconomic Status (SES) Schools (vs. High SES Schools)	.00	1.00	.09	.28
Mid SES Schools vs. High SES Schools	.00	1.00	.24	.43
School Resources	1.00	3.64	1.73	.54
Academic Climate	-.63	.27	.01	.15
School Safety	-.98	.94	.04	.33
Teacher-Student Relationship	-1.05	2.18	.09	.41
Parental Involvement	.00	1.00	.36	.29
Principal Leadership	1.50	3.00	2.58	.29
School Remediation Effort	.00	1.00	.27	.15

Table 3

Correlation Statistics for Student-level Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Gender	1.00												
2. Family socioeconomic status	.03	1.00											
3. Number of Siblings	-.03	.05*	1.00										
4. Family Composition	.04*	.24*	.07*	1.00									
5. Student Expectation	.21*	.21*	.04	.06*	1.00								
6. Parent Expectation	.11*	.19*	.03	.04	.30*	1.00							
7. Teacher Expectation	.13*	.32*	.07*	.10*	.39*	.20*	1.00						
8. Peer Expectation	.18*	.06*	.01	.01	.05*	.04*	-.02	1.00					
9. Homework Per Week	.05*	.12*	.03	.04	.15*	.05*	.19*	.02	1.00				
10. Parent Homework Monitoring	.05*	.01	-.01	.00	.07*	.06*	-.01	.10*	.02	1.00			
11. Student School Involvement	.11*	.66*	.00	.02	.15*	.07*	.17*	.05*	.13*	-.02	1.00		
12. Student Community Involvement	.07*	.10*	-.03	.03	.12*	.04	.10*	.05*	.09*	-.00	.21*	1.00	
13. Student Self- Efficacy	.03	.07*	.01	.00	.24*	.12*	.23*	.13*	.10*	.04	.14*	.11*	1.00

* $p < .05$.

Table 4

Correlation Statistics for School-level Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Mid-Size School (vs. Small Schools)	1.00														
2. Large Schools (vs. Small Schools)	-.16	1.00													
3. Public Schools (vs. Private Schools)	.31	.15	1.00												
4. Catholic Schools (vs. Private Schools)	-.22	-.10	-.70	1.00											
5. Urban Schools (vs. Rural Schools)	.11	.05*	-.21	.20	1.00										
6. Suburban Schools (vs. Rural Schools)	-.01*	-.01*	.06	-.05*	-.68	1.00									
7. Low SES Schools (vs. High SES Schools)	.02*	.10	.12	-.10	.09*	-.05*	1.00								
8. Mid SES Schools (vs. High SES Schools)	.04*	-.02*	.26	-.17	.04*	-.02*	-.17	1.00							
9. Academic Climate	-.05	-.11*	-.35*	.27*	.05	-.02	-.16*	-.18*	1.00						
10. School Safety	-.44*	-.29*	-.62*	.39*	-.09*	-.02	-.16*	-.22*	.43*	1.00					
11. Teacher-Student Relationship	-.14*	-.02	-.46*	.25*	.09*	-.02	1.05	-.12*	.34*	.49*	1.00				
12. Parental Involvement	.13*	.16*	.18*	-.09*	.01	.03	.05	.02	-.01	.22*	-.05	1.00			
13. Principal Leadership	-.07	-.09*	-.23*	.15*	-.04	.03	-.09*	-.10*	.28*	.27*	.14*	-.09*	1.00		
14. School Resources	.08*	.05	.19*	-.15*	.07	-.06	.17*	.09*	-.40*	.27*	-.16*	.12*	-.28*	1.00	
15. School Remediation Effort	.01	-.01	-.01	.01	.03	-.04	.01	-.01	.11*	-.02	-.03	.09*	.03	-.10*	1.00

* $p < .05$.

Table 5

*Absolute Effects of Student-Level Variables on the Probability of Academic Resilience
Among Tenth-Grade African American Students*

Student-Level Variables	Exp	SE
Gender (Male=1, Females=0)	1.11	.11
Family Mean		
Socioeconomic Status	2.98	.11
Number of Siblings	.86	.05
Family Composition (Single Parent =0, Both Parents=1)	1.38	.11
Student Expectation	1.24*	.03
Parent Expectation	1.13*	.02
Teacher Expectation	1.71	.06
Peer Expectation	.96	.05
Homework Time per week	1.12*	.02
Parent Homework Monitoring	.97	.14
Student School Involvement	1.16*	.03
Student Community Involvement	1.53	.10
Math and English Self- Efficacy (combined)	1.65	.11

* $p < .05$

Table 6

Absolute Interaction Effects of Student-Level Variables on the Probability of Academic Resilience Among Tenth-Grade African American Students

Student-Level Variables	Exp	SE
Family Socioeconomic Status (SES) and Student Exp.		
SES	4.09	.77
Student Expectation	1.21*	.04
SES \times Student Expectation	.98*	.04
Family Socioeconomic Status (SES) and Parent Exp.		
SES	1.68	.66
Parent Expectation	1.10*	.03
SES \times Parent Expectation	1.03	.04
Family Socioeconomic Status (SES) and Teacher Exp.		
SES	13.14	1.18
Teacher Expectation	1.60	.06
SES \times Teacher Expectation	.89	.08
Family Socioeconomic Status (SES) and Peer Exp.		
SES	4.50	.21
Peer Expectation	.92*	.05
SES \times Peer Expectation	.77	.09
Family Composition and Student School Involvement		
Family Composition	1.51	.14
Student School Involvement	1.18*	.05
Family Composition \times Student School Involvement	.96	.08
Family Composition and Student Community Involvement		
Family Composition	1.53	.16
Student Community Involvement	1.62	.19
Family Composition \times Student Community Involvement	.85	.25

* $p < .05$.

Table 7

*Absolute Effects of School-Level Variables on the Probability of Academic Resilience
Among Tenth-Grade African American Students*

School-Level Variables	Exp	SE
Mid-size school (vs. Small school)	1.33	.20
Large-size school (vs. Small school)	2.98	.11
Public school vs. Private school	.86*	.05
Catholic school vs. Private School	3.52*	.31
Urban School vs. Rural School	1.60	.28
Suburban School vs. Rural School	1.09	.23
Large School Mean Socioeconomic Status	.45	.50
Mid-size School Mean Socioeconomic Status	.65	.24
Principal Leadership	.83	.41
Academic Climate	16.28*	1.18
Teacher-Student Relationship	1.10	.33
Parental Involvement	.78	.42
School Resources	.72	.27
School Safety	2.53*	.12
School Remediation Effort	.42	.31

* $p < .05$.

Table 8

Relative Effects of Statistically Significant Student and School-Level Variables on the Probability of Academic Resilience Among Tenth-Grade African American Students

Variables	Exp	SE
Student Level Variables		
Family Socioeconomic Status (SES)	3.20*†	.34
Teacher Expectation	1.67*†	.07
Family Socioeconomic Status × Peer Expectation	.77†	.14
Homework Time Per Week	1.12*†	.02
Student School Involvement	1.67†	.16
School Level Variables		
Academic Climate	7.44*	1.11
School Remediation Effort	.22*	.67

* $p < .05$. † $p < .07$.

Chapter 5: Discussion

This chapter consists of three major sections: (a) summary of the principal findings, (b) revisit of literature review, (c) implications for policy and practice, (d) limitations of the study, and (e) suggestions for future research. The purpose of this research was to examine personal characteristics (students and families) and collective characteristics of school environment (context and climate) that are associated with academic resilience. Academic resilience was measured using a composite measure of academic achievement (combined quartile ranking of standardized reading and mathematical test scores). This investigation helps to understand factors that may influence human development in the presence of family, friends, and school environments.

Summary of Principal Findings

The research findings of this study revealed that there are statistically significant, positive relationships between academic resilience and student, family, and school factors. These findings add credibility to ecological levels of academic resilience that there is a dynamic interaction among the student and school factors. The two-level logistic regression model helped to build a framework to examine the relative effects of student and school characteristics on the probability of academic resilience among African American students.

The first research question pertains to student and family characteristics that are associated with the academic resilience of African American high school students. This study revealed that the interaction between African American student's family SES and student (academic) expectation positively influenced with the probability of academic

resilience. Thus, the effects of family SES on the academic resilience depend on the level of peer (academic) expectation. Specifically, when comparing two African American high school students one unit apart in SES, for the student with the lower peer (academic) expectation, one unit increase in family SES would make the student 3.21 times more likely to be academically resilient. For the student with the higher SES and peer (academic) expectation, one unit increase in family SES would make the student 2.48 times more likely (e raised to the power of $1.17 - .26 = .91$) to be academically resilient.

In addition, teacher (educational attainment) expectation, homework time per week, and student involvement in school activities positively influenced the probability of academic resilience among African American students. Specifically, when comparing two African American high school students one unit apart in terms of teacher expectation (how far the student will go in their educational attainment), the one with higher teacher expectation was 1.67 times more likely to be academically resilient than the one with lower teacher expectation. When comparing two African American high school students one unit (1 hour) apart in terms of time spent on homework per week, the student with the more homework time spent per week was 1.12 times more likely to be academically resilient than the student with the less time spent on homework per week. Lastly, when comparing two African American high school students one activity apart in terms of school involvement (e.g., band, chorus, sports, or academic clubs), the student with the higher number of school involvement activities was 1.67 times more likely to be academically resilient than the student with the lower school involvement activities.

The second research question pertains to school contextual and climate characteristics that are associated with academic resilience of African American high school students. This study revealed that school academic climate and school remedial efforts mattered most. Specifically, when comparing two high schools one unit apart in school academic climate, African American students in the high school with higher academic climate were 7.44 times more likely to be academically resilient than African American students in the high school with lower academic climate. When comparing two high schools one unit apart in school remedial efforts, African American students in the high school with lower school remediation efforts were 4.54 times more likely ($1 \div .22$) to be academically resilient than African American students in the high school with higher remediation efforts.

This study also went into depth to examine some unique properties of academic resilience of African American high school students. The probability of academic resilience for the typical African American student with nationally average characteristics was 11%, indicating a rather low probability. Further, the national probability for African American students to be academically resilient ranged from 6% to 17% based on the statistically significant student-level and school-level variables in this study.

Because school remedial effort is negative (-1.51), further analyses were conducted for ways to nullify this negative impact. At the school level, African American students attending a school with both school effort and academic climate scored as 1 (i.e., presence of positive academic climate) were 1.65 times more likely to be academically resilient than African American students attending a school with school effort scored as 1 and academic climate scored as 0 (i.e., absence of positive academic

climate). This study further revealed that student-level variables can also nullify the negative effect of school effort. Teacher expectation is positive with a magnitude of .51 and thus it would take nearly three times the effort (strength) of teacher expectation ($0.51 \times 3 = 1.53$ which nullify -1.51) to nullify the negative effect of school effort. Student school involvement is positive with a magnitude of 0.49 and thus would take nearly 4 times the effort of student school involvement ($0.49 \times 4 = 1.96$ which nullify -1.51) to nullify the negative effect of school effort. Time spent on homework per week is positive with a magnitude of .14 and thus would take approximately 11 times the effort of homework per week ($.14 \times 11 = 1.54$ which nullify -1.51) to nullify the negative effect of school effort, which perhaps is difficult to achieve. SES related issues (including the interaction with student expectation) were not discussed because SES is not easy to change. The following section examines what was found in this study in comparison to what has been found in the literature review.

Revisiting the Literature

This study supports the social and ecological dimensions between students and schools. More specifically, this study revealed that strengthening the academic climate at the school level and teacher expectation, student school involvement, and homework requirement at the student level will promote academic resilience among some African American students. Increasing a school's positive academic climate may function to counterattack risk factors (e.g., low academic expectations, student involvement, and family SES) making it more likely for African American students to be academically resilient. Particularly, at the student level, increasing teachers' academic expectations of students may promote academic resilience among African American students.

Meanwhile, increasing student school involvement and enhancing homework requirement may help to increase the probability of academic resilience for African American students. The following paragraphs will take a closer look at how these factors positively influence academic resilience.

School Level Characteristics and Academic Resilience

Academic Climate and Academic Resilience. Consistently research has demonstrated that school characteristics promote academic resilience. Some school characteristics include caring and supportive teachers (Borman & Overman, 2004; Henderson & Milstein, 2003; Werner & Smith, 1989; Williams & Bryan, 2013), a safe and orderly school environment (e.g., Borman & Overman, 2004; Morales, 2010; Wang et al., 1995), and positive expectations for all students (Martin & Marsh, 2009; Morales, 2008; Rutter, 1987; Trask-Tate & Cunningham, 2010; Williams & Bryan, 2013). These characteristics align with the constructs of school academic climate, teacher expectation, and school safety. Academic climate is defined as “the extent to which a school is driven by a quest for academic excellence...high but achievable academic goals are set for students; the learning environment is orderly and serious; students are motivated to work hard; and students respect academic achievement” (Hoy, Tarter, & Woolfork, 2006, p. 427). The schools in this study that were perceived to be high in academic climate resulted in higher odds (7.44 times more likely) of African American students being academically resilient. Further, this study revealed that higher academic climates within schools served to nullify the negative effects such as school (remediation) efforts to keep all students on the path to academic success.

Teacher Academic Expectation and Academic Resilience. One key finding in terms of teacher expectation was the level of the influence a teacher's expectation had on academic resilience. Teacher expectation is defined as "the judgment of teachers that can organize and execute the actions required to have positive effects on students" (Bandura, 1997, p. 434). According to Bandura's (1997) social cognitive theory, human behavior is shaped by one's expectations for success. Therefore, teachers with the expectation that their student can and will perform generally have students that do (Bandura, 1997). Hoy, Sweetland, and Smith (2002) concluded that consequences of high teacher expectations would be the acceptance of challenging goals, strong effort by teachers, and persistence in an effort to overcome academic failures or setbacks and succeed. Likewise, this study found that a teacher's (academic) expectation was a significant predictor of academic resilience. Over and above the probability of a student's (1.24) and parent's (1.13) academic expectation, the academic expectation of a teacher showed greater odds (1.67 times more likely) of being academically resilient. In other words, the teacher's (academic) expectation of their student showed greater influence more so than how far a student or parent thought their child would go in their educational attainment. This finding supports the notion that a student's attachment to other adults outside of their parent has a significant influence on their academic outcomes relative to academic setbacks or academic failures (Martin & Marsh, 2009; Morales, 2010; Williams & Bryan, 2013).

As demonstrated in this study, a teacher's expectation contributes over and above both the parent and student's (academic) expectation. Particularly, in the case of some

African American students, teacher's potential stereotypes and expectations about their capabilities may cause them to treat their students differently resulting in student outcomes matching their teacher expectations (Martin & Marsh, 2009; Morales, 2008; Trask-Tate & Cunningham, 2010; Williams & Bryan, 2013). Stereotypes such as low income often equates to low academic performance are propelled by decades of national publications profiling lower achieving students in the United States, as low income and minority youth (National Center on Educational Statistics, 2016). Therefore, schools can develop a culture that promotes a commitment component of being academically successful with all students, because some students will take on their teacher's values through a socialization process (Brown & Jones, 2004).

Homework Time Per Week and Academic Resilience

Morales (2010), noted that truly effective parents went beyond simply making isolated comments about wanting their students to do well in school. Instead, parent's expectations translated into concrete actions by enrolling their students in schools outside of their normal attendance area (76%), encouraging their children to read (80%), and staying on top of them about doing their homework (72%). In terms of homework, this study revealed that the amount of time spent an African American student spent on homework outside of school promoted academic resilience. Specifically, if two African American high school students were one unit (1 hour) apart in their time spent on homework per week, the student with the higher homework time spent per week was 1.12 times more likely to be academically resilient than the student with the lower time spent on homework per week. Morales (2010) emphasized that the interplay of factors (e.g., parental high academic expectations supported by words and actions) in the lives of these

youth promotes academic resilience. Further research supports that student effort and strategy are key to enhance their sense of control and accomplishments in schools (Martin & Marsh, 2009).

Student School Involvement

Another key result in this study was that more school involved among African American students increased the likelihood of becoming academically resilient. Students involved in school activities can be used to facilitate a student's developing of belongingness (Morales & Trotman, 2011). This means that schools that foster student participation in a variety of activities within schools and connected to student communities are more likely to have academically resilient students. Of course, the effectiveness of these activities depends on the type, frequency, and quality of the activity context. The inclusion signifies new awareness that, coupled with other common settings such as family and community, school activities also represent important context of youth development. One important aspect of student involvement is the feeling that one belongs in their environment (Morales, 2010). Belonging here means that a student feels valued, personally respected, included and supported by others in the student's school environment (Morales, 2010).

Conclusion

Based on this it is evident that probability properties suggest that academic resilience could not become a national phenomenon at the time of this educational longitudinal study. Given the low national probability, it is an uphill effort to increase the likelihood of academic resilience among some African American youth. Specifically,

this result calls for a comprehensive attention and effort in research examining how to cultivate and promote academic resilience among African American students.

Cultivating Academic Resilience in Schools. This study sought to understand what student and school characteristics serve to promote academic resilience among African American high school students. So what form should a school-setting take that serves higher numbers of African American students to promote academic resilience? There are several ways to foster academic resilience in schools. First, a history of effective school research tells us that characteristics such as caring and supportive teachers, high expectations for student achievement, and a safe and orderly environment are significant factors that influence academic resilience (Borman & Overman, 2004; Edmonds, 1979; Morales, 2010; William & Bryan, 2013). Effective schools research, built on a model of “what works” for disadvantaged African American students, seems appropriate to have greater predictive influence among African American students.

Secondly, moving identified characteristics of effective school research into a public high school setting may empower African American students to succeed in school and beyond. Such characteristics involve a positive school climate, teachers' high expectations of students, a curriculum that is complex, and rigorous, the schools' acknowledgment and support of the school and community. Community efforts may include nurturing a strong African American identity among the students, attention to the spiritual development of African American students and their families, and an emphasis on the importance of education. All of these activities outside of the school may nullify negative effects of school efforts in a public school setting. The significance of these findings challenges the dominant educational theory that African Americans are

involuntary minorities, in European mainstream educational settings, who are vulnerable to the perception of limited opportunities because of their family's economic and social status. The findings of this study highlighted ways policymakers and school leaders should understand the risks associated with underdevelopment of academic resilience and how protective or promoter factors may be used to buffer against these risks.

Intervention strategies and maximizing school efforts may serve to empower students, parents, teachers, and communities to meet state goals and federal educational requirements.

Implications for Policy

Several aspects of my personal identity, beliefs, and educational experiences have impacted the lens by which I view this issue. These experiences have fueled my passion and belief that every child can learn at high levels with caring and supportive adults in their lives. My 10 years of experience working at a state agency, responsible for shaping education legislation, policy and practice in Kentucky, has helped me to understand the data of this study.

This study revealed four key areas for policy makers, state superintendents, school leaders, and teachers to consider promoting positive academic outcomes among African American students. The first significant finding of this study was the importance of a positive academic climate within the school environment. Educational theorist has long reported that the principals' impact on learning is mediated through the school's climate and culture (Hallinger & Heck, 1998). More specifically, if the school's academic climate and culture is not conducive to learning then student achievement can suffer (Watson, 2001). From a psychological perspective, a closer look at the

relationships of specific aspects of the school climate and culture to student learning is needed. This may be accomplished in a couple of ways. One approach would be to provide additional training for principals starting at the pre-service level on how to enhance their schools' academic climate. Secondly, current school principals may consider having a school climate and culture audit completed to evaluate the attitudes and perceptions of teachers and staff within the school. For example, Kentucky was the first state to implement scholastic audits as a way to monitor the effectiveness of schools that consistently fail to make academic progress, although this is no longer occurring, it is worth revisiting. One major benefit of scholastic audits is that it often shed light on the type of positive interactions needed in schools between teachers, students, and in order for all students to feel supported is necessary to enhance positive learning environment.

The second significant finding revealed that the teacher's expectation of an individual student positively influenced academic resilience among African American students. It is natural for teachers to form first impressions and set academic expectations for a classroom of students they just met; however, inappropriate expectations of some students may negatively influence a student's own behavior or attitude towards learning. For example, a teacher may set lower academic expectations for a student that has historically been low achieving or comes from a low socioeconomic background. These lower academic expectations can contribute to an academic climate in which equal opportunities among students to be academically successful may be compromised. Therefore, helping teachers to understand, develop, and maintain high academic expectations for African American students are worthy educational goals for

policymakers and administrators to pursue and support for the purpose of increasing the likelihood of academic resilience among African American students.

A third major finding, in terms of a student's school involvement activities (e.g., band, chorus, sports, and academic clubs), was that African American students involved in more school activities yielded higher chances of being academically resilient. Student school involvement from a psychological perspective is characterized as feeling of attachment to school and is a way for students to establish relationships with others in the school community. Thus, school extracurricular activities provide additional ways to promote school connectedness and support positive student outcomes. School leaders should be encouraged to offer more extracurricular activities, which can serve to reinforce academic resilience among African American students. Despite today's budget constraints that may hinder the expansion of some activities some schools may seek to collaborate with community partners to offset additional cost.

Lastly, educators may "manipulate" the amount of effort a student put towards completing homework as a way to enhance academic resilience among African American students. From an ecological perspective, interventions among these factors could take place at the student, school, and community levels. For example, homework time per week was positively associated with academic resilience. As such, homework support groups through before or after school programs, or schools collaborating with other community groups (e.g., religious, businesses, fraternity, or sorority, etc.) to provide additional academic support may be beneficial. These partnerships and intervention strategies between schools and members of the community could increase academic engagement along with the probability of some African American students experiencing

academic resilience. As a state educational consultant, I have also seen the efforts of community support and intervention strategies lead to positive impacts on academic achievement of African American youth.

Limitations of this Study

Readers should have the following limitations in mind while interpreting the results of this study. First, this dissertation study was limited in size and scope. For example, this study is focused on the academic resilience of students at one point in time. Secondly, researchers using the ELS, are limited to the variables in this dataset. While this dataset provided a unique opportunity to explore the relationship of academic resilience among a nationally representative sample of African American students, the dataset is over a decade old. However, for this study the base-year of the ELS was employed because it provides the largest nationally representative sample of African American students, far more than the recent studies, with samples of minority students (Martin & Marsh, 2009; Morales, 2010; Williams & Bryan, 2013). A larger sample of African American students may afford the present study a better chance to minimize biases coming from a sample selection and generalized findings to the targeted population of interest with greater confidence.

Furthermore, researchers of secondary data analysis are limited to the variables that are available in the existing databases (Babbie, 2001). A three-level hierarchical linear (HLM) model examining the student, school, and teacher variables would have been more informative but impossible with the ELS dataset. Given the important role of schools as social institutions that has critical impact on academic resilience of diverse students, there is a lack of measures related to school characteristics available to the

present study. Although the number of school-level variables is among the largest in the research literature, it is still not as comprehensive as one would like to cover key aspects of school context and in particular school climate.

Lastly, this study addressed the social context of factors that are positively associated with academic resilience, yet it was limited to examining the psychological aspect. For example, this study found that an increase in student involvement activities increased the likelihood of African American students to experience academic resilience. According to Fredricks and Eccles (2008), the positive outcomes as it relates to extracurricular activities are functions of the unique ecological context consisting of distinct characteristics and relationships among peers and adults in the school. Further investigation is needed on how increased student involvement (i.e., participation in sports, academic clubs, band, etc.) offers a unique opportunity for students to socialize into a more popular peer group free from stereotype threat, bullying, and social exclusion.

Recommendations for Future Research

Future studies may extend the findings of this study in the following four ways. First, since academic resilience is a process occurring over time, it may be necessary for larger scale longitudinal studies to examine student, family, and school environment factors that are associated with academic resilience at multiple time points to determine their predictive capacity more conclusively. A student that is identified as academically resilient one year may not be academically resilient the next due to a traumatic event or changes to their family circumstance or environment. Secondly, future studies along this line of research can always benefit from a larger sample size to explore the relationship between academic resilience among African American students more deeply. Thus,

future researchers should consider examining students at all levels elementary through postsecondary institutions. Given the federal and state regulations that focus on more college and career ready students, evaluating factors of successful African American students is necessary. More specifically, the Every Student Succeeds Act (2015), federal legislation governing how state education agencies use federal education funds to improve student outcomes and enhance equity, access, and opportunities, has put more emphasis on state agencies to meet this goal. Because national publication of student data continues to promote the underperformance of African American students relative to their Caucasian peers, research that contributes to intervention strategies to promote academic resilience among African American students should be a priority (NCES, 2016). States may consider these findings as they revisit or modify their state equity and intervention plans from year to year.

Third, given the secondary data analysis nature of this dissertation, many important protective factors at student (i.e., individual/personal) and school (i.e., collective/environment) levels were not available in the ELS dataset. For example, future studies that seek to contribute to the field educational psychology should take into consideration other psychological dimensions such as cognitive, motivational, and behavioral factors that are positively associated with academic resilience. Some factors that influence an individual's psychological development may include identity development, self-regulation, goals setting, time management, and sense of purpose that occurs in an educational environment. Additional school level factors such as the school's effort towards inspiring students for future education and occupation opportunities and assisting students with transitioning into postsecondary may serve to

activate academic resilience among African American students. With regard to address further federal legislative demands and national reports on the workforce needs of the future in the United States, a school's effort to assist students in these areas becomes increasingly important. Specifically, the Workforce Innovation Opportunity Act (WIOA), a reauthorization the Workforce Investment Act of 1998, requires all states to work more collaboratively with regards to their educational and employment training services. In Kentucky, educational, employment training entities, and business sectors are working together to reduce barriers (e.g., education or job training) to employment and increase the number of individuals in educational and training programs that lead to a credential or occupations earning a sustainable living wage. This push for collaboration among states at the federal level could not have come at a better time with national reports predicting by 2020, that 65 percent of jobs will require some type of postsecondary education (e.g., training certificate, associates' degree, or bachelors' degree and beyond) (Georgetown Center on Education and Workforce, 2013). These federal regulations and national reports on future workforce demands sheds light on the critical needs of schools, businesses, and community partners to work more collaboratively to ensure equip all students for entry into a postsecondary institution and/or the workforce. This collaboration is necessary to positively influence our economic growth. Fourth and final, researchers should also consider mixed methods designs (e.g., qualitative and quantitative) to obtain richer interpretations of what represents academic resilient qualities among African American students.

Appendix A

Description of Student and School Characteristics

Student Characteristics	Description
Gender	Your gender? Mark one response: a) male, b) female. Sex-composite labeled BYSEX previously named SEX. Taken from student questionnaire (BYS14). Recoded to 1= Male, Female=0.
Father (mother) socioeconomic status (SES)	This composite variable (BYSES1), previously named SES1, comes from parent questionnaire BYP85. Which income category does your total family income from all sources fall into? Mark one response: a) \$1000 or less, b) \$1001-5000, c) \$5001-10,000, d) 100,001-15,000; e) 15,001-20,000, f) 20,001-25,000, g) 25,001-35,000, h) 35,001-50,000, i) 50,001-75,000, j) 75,001-100,000, k) 100,001-200,000. SES2 is based on five equally weighted, standardized components: father's/guardians' education (FATHED), mother's/guardians' education (MOTHED), family income (INCOME), father's/guardians' occupation (OCCUFATH), and mother's/guardians' occupation (OCCUMOTH). Each of these five composite variables that served as inputs to SES1 and SES2 were imputed if missing. This variable was used as a control variable.
Number of Siblings	The composite variable BYSIBHOM was constructed from parent questionnaire variables previously labeled BYP07A. Indicate how many siblings are living in your home? Mark one response: a) 0 siblings b) 1 sibling, c) 2 siblings, d) 3 siblings, e) 4 siblings, e) 5 siblings, f), 6 siblings, g) 7 or more siblings.
Family Composition	The composite variable BYFCOMP was based primarily on variables BYP01 and BYP04 taken from the parent questionnaire. (BYP01)-What is your relationship the tenth grader name on the front cover? BYP04-What is your spouse/partner's relationship to the tenth grader named on the front cover? Mark one response: a) biological mother, b) biological father, c) adoptive mother, d) adoptive father, e) stepmother, f) stepfather, g) grandmother, h) grandfather. Recoded to Single Parent=0, Both Parents=1.

Peer Expectation	<p>The composite variable BYFRGRIM previously BYS25EA, BYS25EB, and BYS25EC on the base year student questionnaire. This variable indicates the number of 10th grader's friends who consider grades very important. Indicate the importance of good grades to each of their three best friends. Mark one response: How important is getting good grades to this 1st friend? a) not at all important, b) somewhat important, or c) very important. The coefficient of reliability (alpha) for this scale is 0.93.</p>
Reading Self-Efficacy	<p>The composite variable BYENGLSE is a scale of the respondent's self-efficacy in Reading, constructed from the following items. How often do these things apply to you? 1) I can understand difficult Reading texts, 2) I can understand a difficult Reading class, 3) I can do an excellent job on Reading assignments, and 4) I can do excellent job on Reading tests. Mark one response: a) almost never; b) sometimes, c) often, or d) almost always. Higher values represent greater self-efficacy. The variable was created through principal factor analysis (weighted by BYSTUWT) and standardized to a mean of 0 and standard deviation of 1. Only respondents who provided a full set of responses were assigned a scale value. The coefficient of reliability (alpha) for the scale is .93.</p>
Math Self-Efficacy	<p>The composite variable BYMATHSE is a scale of the respondent's self-efficacy in mathematics in the student base year questionnaire, constructed from four items (BYS89A, BYS89B, BYS89L, and BYS89R). How often do these things apply to you? 1) I can understand difficult math text, 2) I can understand a difficult math class, 3) I can do an excellent job on math assignments, and 4) I can do excellent job on math tests. Mark one response: a) Almost never; b) Sometimes, c) Often, or d) Almost always. Higher values represent greater self-efficacy. Variable was created through principal factor analysis (weighted by BYSTUWT) and standardized to a mean of 0 and standard deviation of 1. Only respondents who provided a full set of responses were assigned a scale value. The coefficient of reliability (alpha) for the scale is .93.</p>
School Involvement	<p>This composite variable BYXTRACU previously labeled as BYS41A–41I on the student questionnaire, indicates the number of these activities the respondent participated in during the 01-02 school</p>

	<p>year. Have you participated in the following school-sponsored activities this school year? Mark one response on each line (yes or no). The 9 school-sponsored activities used as inputs for this variable are: a) school band/chorus, b) a school play or musical, c) student government, d) academic honor society, e) school yearbook, f) newspaper, g) school service clubs, h) school academic clubs, i) school hobby clubs, and j) school vocational clubs. Composite variable was coded as: 0=0 participated activities, 1=1 school sponsored activity, 2=2 school sponsored activities, 3= 3 school sponsored activities, 4=4 school sponsored activities, 5=5 school sponsored activities, 6=6 school sponsored activities, 7=7 school sponsored activities, 8=8 or more school sponsored activities. This variable was in was inverted to a count of yes with higher values meaning higher school involvement.</p>
Community Service	<p>This variable BYS44C comes from the student base year questionnaire. How often do you spend time on volunteering or performing community service outside of school? Mark one response: 1) rarely or never, 2) less than once a week, 3) once or twice a week, or 4) Every day or almost every day.</p>
Student Expectation	<p>The variable BYSTEXP was previously labeled as BYS56 from the student questionnaire. How far student thinks he/she will get in school? Mark one response: a) less than high school graduation, b) high school graduation, c) attend or complete a 2-year college school course in a community or vocational school, d) attend college, but not complete a 4-year degree, e) graduate from college-obtain a Master's degree or equivalent, Ph.D., M.D., or other advanced degree, or f) don't know. The coefficient of reliability (alpha) for this scale is</p>
Teacher-Student Relationship	<p>This composite variable (BYTSTREL) consist of five items on the student base year questionnaire questions (BYS20A, BYS20E-H). Higher values represent perceptions of more positive student-teacher relations. Variable was created through principal factor analysis (weighted by BYSTUWT) and standardized to a mean of 0 and standard deviation of 1. Only respondents who provided a full set of responses were assigned a scale value. How much do you agree with each of the following statements about your current teachers? Mark one response on each line, 1) strongly</p>

	<p>agree, 2) agree, 3) disagree, or 4) strongly disagree. BYS20A) Students get along well with teachers, b) teachers are interested in students, c) in class students often feel put down by teachers, d) teachers praise effort, e) the teaching is good, f) there is real school spirit, g) students are friendly with other racial groups, and h) other students often disrupt class. The coefficient of reliability (alpha) for this scale is .73.</p>
Parent Expectation	<p>This composite variable BYPARASP was previously labeled as PARASPIR, based on PYP79 from parent questionnaire. How far in school, do you want your tenth grader to go? Mark only the highest level that applies: a) Less than high school graduation, b) High school graduation or GED only c) Attend or complete 2-year college/school, d) Attend college, 4-year degree incomplete, e) Graduate from college, f) Obtain Master's degree or equivalent, g) Obtain PhD, MD, or other advanced degree.</p>
Parental Involvement	<p>This variable BYP54A-E is from the base-year parent questionnaire. Mark one response on each line (yes, or no). In this school year, do you or your spouse/partner do any of the following? a) belong to the school's parent-teacher organization, b) attend a parent-teacher organization meeting, c) take part in parent-teach organizational activities, d) act as a volunteer at school, or e) belong to other organization with parents from school.</p>
Parent Monitoring (e.g. homework)	<p>This variable BYP55A is from the base year parent questionnaire. How often do you check that your tenth grader has completed all homework? 1) Never, 2) Seldom, 3) Usually, or 4) Always)</p>

Appendix B

School Characteristics	Description
Academic Climate	<p>This composite variable (BYACCLIM) is a scale of the base-year school administrator's perceptions of the school's academic climate. Higher values represent a more academically-oriented climate. The scale consist of five items BYA51A-E were taken from the administrator's questionnaire. Higher values represent perceptions of a more academically-oriented climate. Variable was created through principal factor analysis, weighted by BYSCHWT. Indicate how much of the characteristics listed below describes your school's climate. Mark one response: 1) Not accurate at all, 2) Between not at all accurate and somewhat accurate, 3) Somewhat accurate, 4) Between somewhat accurate and very accurate, or 5) Very accurate. a) Student Morale is high, b) Teachers at this school press students to achieve academically, c) Teachers morale is high, d) Students place a high priority on learning, and e) Students are expected to do homework. The coefficient of reliability of this scale is .86.</p>
School Location	<p>BYURBAN composite variable is taken from the school file and replicated across each student belonging to that school. This school-level variable is replicated on the student file for all BY eligible sample members. 1 = Urban, 2= Suburban, and 3 = Rural.</p>
School Size (e.g., enrollment)	<p>Grade 10 enrollment from 2001-02 sampled school roster. BYG10EP was taken from the school file and replicated across each student belonging to that school. Category labels were: 1= 1-99 students, 2= 1=199, 3=200-299 students, 4= 300-339 students, 5=400-549, 6=550-649, 7=700 or more.</p>
School Safety	<p>These composite variables are perceptions of the administrator's (BYSCSAF1), (Cronbach alpha = .88) and students (BYSCSAF2), (Cronbach alpha = .64) on the level of safety within schools. BYSCSAF1 consist of 19 variables (BYA49A-S) and BYSCSAF2 consist of three variables (BYS20J, M-N). These two variables were aggregated to measure the average perception of safety across schools.</p>
School Socioeconomic (SES) composition	<p>This composite variable BY10FLP was taken from the school file and replicated across each student each belonging to that school. Percent of 10th graders</p>

	receiving free or reduced price lunch. Percentages categorized by the following: 1 = 0-5% receive free, reduced-price lunch, 2 = 6-10% receive free, reduced-price lunch, 3 = 11-20% receive free, reduced-price lunch, 4 = 21-30% receive free, reduced-price lunch, 5 = 31-50% receive free, reduced-price lunch, 6 = 51-75% receive free, reduced-price lunch, 7 = 76-100% receive free, reduced-price lunch.
School Type	BYSCTRL is taken from the school file and replicated across each student belonging to that school. 1= Public, 2 = Catholic, and 3 = Other Private.
School Resources	This variable is a composite variable that includes BYA50A-K questions taken from the base-year administrator questionnaire. The question is in your school, how much is the learning of 10th graders hindered by? Mark one response: 1) not at all, 2) very little, 3) to some extent, or 4) a lot.
School Effort (Remediation)	This variable is a composite variable that includes BYA37A-F questions taken from the base-year teacher questionnaire. BYA37A question asks: When a student fails a competency test, which of the following options are available to the student at the school and which are required of the students? Mark one response: 1) option not available, 2) option is available, but not required, and 3) required.
Teacher Expectation	How far in school do you expect this student to get? a) Less than high school graduation, b) High school graduation or GED only, c) Attend or complete 2-year college/school, d) Attend college, 4-year degree, e) graduate from college, f) obtain Master's degree, g) obtain Ph.D., MD, other advanced degree, or h) don't know. This variable is the average of mathematics teacher expectation (BYTM20) and Reading teacher expectation (BYTE20) from the base year teacher questionnaire.
Teacher-Student Relationship	This composite variable (BYTSTREL) consist of five items on the student base year questionnaire questions (BYS20A, BYS20E-H). Higher values represent perceptions of more positive student-teacher relations. Variable was created through principal factor analysis (weighted by BYSTUWT) and standardized to a mean of 0 and standard deviation of 1. Only respondents who provided a full set of responses were assigned a scale value. How much do you agree with

	<p>each of the following statements about your current teachers? Mark one response on each line, 1) strongly agree, 2) agree, 3) disagree, or 4) strongly disagree. BYS20A) Students get along well with teachers, b) teachers are interested in students, c) in class students often feel put down by teachers, d) teachers praise effort, e) the teaching is good, f) there is real school spirit, g) students are friendly with other racial groups, and h) other students often disrupt class. The coefficient of reliability (alpha) for this scale is .73.</p>
Principal Leadership	<p>This variable is a composite variable that includes BYA46A-H questions taken from the base-year teacher questionnaire. A question is how much influence do you as a principal have on the following? Mark one response: 1) no influence, 2) some influence, or 3) major influence.</p>

References

- American Psychological Association Presidential Task Force on Educational Disparities. (2012). *Ethnic and racial disparities in education: Psychology's contributions to understanding and reducing disparities*. Retrieved from <http://www.apa.org/ed/resources/racial-disparities.aspx>
- Aud, S., Fox, M., & KewalRamani, A. (2010). *Status and trends in the education of racial and ethnic groups* (NCES 2010-015). Retrieved from <https://nces.ed.gov/pubs2010/2010015.pdf>
- Austin, G., Hanson, T., Bono, G., & Cheng, Z. (2007). *The achievement gap, school well-being and learning supports*. Los Alamitos, CA: West Ed.
- Babbie, E. (2001). *The practice of social research* (9th ed.). Belmont, CA: Wadsworth/Thomson Learning.
- Bandeira de Mello, V., Blankenship, C., & McLaughlin, D. (2009). *Mapping state proficiency standards onto NAEP scales: 2005–2007* (NCES 2010-456). Retrieved from <https://nces.ed.gov/nationsreportcard/pubs/studies/2010456.asp>
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W H Freeman.
- Barrow, F., Armstrong, M., Vargo A., & Boothroyd, R. (2007). Understanding the findings of resilience-related research for fostering the development of African American adolescents. *Child & Adolescent Psychiatric Clinics of North America Journal*, 16, 393-413. <https://doi.org/10.1016/j.chc.2006.12.004>
- Bernard, B. (2004). *Resiliency: What we have learned*. San Francisco, CA: WestEd.

- Bernard, B. (2007). Gender and resilience. In N. Henderson (Ed.), *Resiliency in action: Practical ideas for overcoming risks and building strengths in youth, families, and communities* (pp. 209–210). Solvang, CA: Resiliency In Action.
- Borman, G. (2001). *Academic success among poor and minority students: An analysis of competing models of school effects*. Washington, DC: Office of Educational Research and Improvement.
- Borman, G., & Overman, L. (2004). Academic resilience in mathematics among poor and minority students. *The Elementary School Journal*, 104(3), 177–195.
doi:10.1086/499748
- Bozick, R., Lauff, E., & Wirt, J. (2007). Education Longitudinal Study of 2002 (ELS:2002): A first look at the initial postsecondary experiences of the high school sophomore class of 2002. Retrieved from
<https://eric.ed.gov/?id=ED498655>
- Brennan, M. (2008). Conceptualizing resiliency: An interpersonal perspective for community and youth development. *Child Care in Practice*, 14(1), 55-64.
<http://dx.doi.org/10.1080/13575270701733732>
- Bronfenbrenner, U. (1986). The ecology of the family as context for human development: Research perspectives. *Developmental Psychology*, 22, 723-742.
<http://dx.doi.org/10.1037/0012-1649.22.6.723>
- Brown, W., & Jones, J. (2004). The substance of things hoped for: A study of the future orientation, minority status perceptions, academic engagement, and academic performance of Black high school students. *Journal of Black Psychology*, 30(2), 248-273. doi:10.1177/0095798403260727

- Bryk, A., & Raudenbush, S. (2002). Using multilevel modeling to investigate school effects. In A. A. O'Connell & D. B. McCoach (Eds.), *Multilevel modeling of educational data*, (pp. 59-110). Charlotte, NC: Information Age.
- Byfield, C. (2008). *Black boys can make it: How they overcome the obstacles to university in the UK and USA*. Sterling, VA: Trentham.
- Carey, K. (2002). *State poverty-based education funding: A survey of current programs and options for improvement*. Retrieved from <https://www.cbpp.org/archives/11-7-02sfp.htm>
- Coley, R. (2011). *A strong start: Positioning young Black boys for educational success: A statistical profile*. Educational Testing Service, Addressing Achievement Gaps Symposium, Symposium conducted at the meeting of ETS Policy Information Center.
- Coleman, J., Campbell, E., Hobson, C., McPartland, J., Mood, A., Weinfield, F., & York, R. (1966). *Equality of educational opportunity*. U.S. Department of Health, Education, and Welfare. Washington, DC: National Center for Educational Statistics.
- Conchas, G. (2006). *The color of success: Race and high-achieving urban youth*. New York, NY: Teachers College Press.
- Cravens, H. (1992). A scientific project locked in time: The Terman genetic studies of genius, 1920s-1950s. *American Psychologist*, 47(2), 183-189.
<http://dx.doi.org/10.1037/0003-066X.47.2.183>

- Culross, R., & Winkler, D. (2011). Review of the essential Sternberg. Essays on intelligence, psychology, and education. *Journal of Policy and Practice in Intellectual Disabilities*, 8(3), 218-219. <http://dx.doi.org/10.1037/a0020107>
- Cunningham, M., & Swanson, D. (2010). Educational resilience in African American adolescents. *The Journal of Negro Education*, 79(4), 473-487. <http://dx.doi/10.1037/0003-066X.47.2.183>
- Darling-Hammond, L. (2010). *The flat world and education; How America's commitment to equity will determine our future*. New York, NY: Teachers College Press.
- Delpit, L. (2006). *Other people's children. Cultural conflict in the classroom*. New York, NY: The New Press.
- Delpit, L. (2012). *Multiplication is for White people: Raising expectations for other people's children*. New York, NY: The New Press.
- Dudley-Marling, C. (2007). Return of the deficit. *Journal of Educational Controversy*, 2(1). doi:10.1037/0894-4105.22.3.293
- Edmonds, R. (1979). Effective schools for the urban poor. *Educational Leadership*, 37, 15-27. doi:10.1177/0013124591023003004
- Esquivel, G., Doll, B., & Oades-Sese, G. (2011). Introduction to the special issue: resilience in schools. *Psychology in the Schools*, 48(7), 649-651. <http://dx.doi.org/10.1002/pits.20585>
- Evans, G. (2004). The environment of childhood poverty. *American Psychologist*, 59(2), 77-92. doi: <http://dx.doi.org/10.1037%2F0003-066X.59.2.77>

- Evans-Winters, V. (2005). *Teaching black girls: Resiliency in urban classrooms*. New York, NY: Peter Lang.
- Floyd, C. (1996). Achieving despite the odds: A study of resilience among a group of African American high school seniors. *Journal of Negro Education*, 65(2), 181-189. doi:10.1111/1467-7717.0021
- Fraser, M. (2004). The ecology of childhood: A multisystems perspective. In M. W. Fraser (Ed.), *Risk and resilience in childhood: An ecological perspective* (2nd ed., pp. 1-12). Washington, DC: NASW Press.
- Fredricks, J. A., & Eccles, J. S. (2008). Participation in extracurricular activities in the middle school years: Are there developmental benefits for African American and European American youth? *Journal of Youth and Adolescence*, 37(9), 1029-1043. <https://doi.org/10.1007/s10964-008-9309-4>
- Gardynik, U., & McDonald, L. (2005). Implications of risk and resilience in the life of the individual who is gifted/learning disabled. *Roeper Review*, 27(4), 206-214. <http://dx.doi.org/10.1080/02783190509554320>
- Garmezy, N. (1991). Resiliency and vulnerability to adverse developmental outcomes associated with poverty. *American Behavioral Scientist*, 34(4), 416-430. <http://dx.doi.org/10.1177/0002764291034004003>
- Gay, G. (2000). *Culturally responsive teaching. Theory, research, and practice*. New York, NY: Teachers College Press.
- Gliner, J., & Morgan, G. (2000). *Research Methods in Applied Settings: An Integrated Approach to Design and Analysis*. Mahwah, NJ: Lawrence Erlbaum Associates.

- Greene, R., & Conrad, A. (2002). Basic assumptions and terms. In R. Greene (Ed.), *Resiliency: An integrated approach to practice, policy, and research* (pp. 29-62). New York, NY: NASW Press.
- Grimm, K. (2008). Longitudinal associations between reading and mathematics achievement. *Developmental Neuropsychology*, 33(3), 410-426.
<http://dx.doi.org/10.1080/87565640801982486>
- Hallinger, P. J. & Heck, R. (1998). Exploring the principal's contribution to school effectiveness: 1980-1995. *School Effectiveness and School Improvement*, 9(2), 157-191. <https://doi.org/10.1080/0924345980090203>
- Hamill, S. (2003). Resilience and self-efficacy: The importance of efficacy beliefs and coping mechanisms in resilient adolescents. *Colgate University Journal of the Sciences*, 115-146. <http://dx.doi.org/10.4236/jss.2013.16001>
- Haycock, K., & Jerald, C. (2002). Closing the achievement gap. *Principal*, 82(2), 20-23. doi:10.06.0407162101.
- Henderson, N., & Milstein, M. (2003). *Resiliency in schools: Making it happen for students and educators*. Thousand Oaks, CA: Corwin.
- Herrnstein, R. & Murray, C. (1994). *The bell curve: Intelligence and class structure in American life*. New York, NY: The Free Press.
- Hoy, W., Sweetland, S., & Smith, P. (2002). Toward an organizational model of achievement in high schools: The significance of collective efficacy. *Educational Administration Quarterly*, 38(1), 77-93. doi:10.1177/0013161X02381004

- Hoy, W., Tarter, C., & Woolfolk Hoy, A. (2006). Academic optimism of schools: A force for student achievement. *American Educational Research Journal*, 43(3), 425-446. <http://doi/10.3102/00028312043003425>
- Jencks, C., Smith, M., Ackland, H., Bane, M., Cohen, D., Gintis, H., Heyns, B., & Michelson, S. (1972). *Inequality: a reassessment of the effect of family and schooling in America*. New York, NY: Basic Books.
- Jensen, A. (1969). How much can we boost IQ and scholastic achievement? *Harvard Educational Review*, 39, 1-123. doi:10.1111/j.1745-6916.2007.00037.x
- Kannapel, P., Clements, S., Taylor, D., & Hibpshman, T. (2005). *Inside the black box of high-performing high-poverty schools*. Retrieved from <http://www.prichardcommittee.org/Ford%20Study/FordReportJE.pdf>
- Kitano, M., & Lewis, R. (2005). Resilience and coping: Implications for gifted children and youth at risk. *Roeper Review*, 27(4), 200–215. <http://dx.doi.org/10.1080/02783190509554319>
- Kober, N. (2001). *It takes more than testing: Closing the achievement gap. A report of the Center on Education Policy*. Washington, DC: Center on Education Policy.
- Kozol, J. (2000). *An unequal education*. Retrieved from <http://www.slj.com>
- Kumar, R. (2006). Students' experiences of home-school dissonance: The role of school academic culture and perceptions of classroom goal structures. *Contemporary Educational Psychology*, 31, 253–279. <https://doi.org/10.1016/j.cedpsych.2005.08.002>
- Kunjufu, J. (2007). *Raising black boys*. Chicago, IL: African American Images.

- Ladson-Billings, G. (2006). From the Achievement Gap to the Education Debt: Understanding Achievement in U.S. Schools. *Educational Research*, 35(7), 3-12. doi:10.3102/0013189X035007003
- Lee, V., & Burkham, D. (2002). *Inequality at the starting gate: Social background differences in achievement as children begin school*. Washington, DC: Economic Policy Institute.
- Lee, W., Hanson, B., & Brennan, R. (2002). Estimating consistency and accuracy indices for multiple classifications. *Applied Psychological Measurement*, 26(4), 412-432. <https://doi.org/10.1177/014662102237797>
- Lewis, C., James. M., Hancock, S., & Hill-Jackson, V. (2008). Framing African American students' success and failure in urban settings: A typology for change. *Urban Education*, 43(2), 127-153. <http://dx.doi.org/10.1037/tps0000043>
- Luthar, S., & Zigler, E. (1991). Vulnerability and competence: A review of research on resilience in childhood. *American Journal of Orthopsychiatry*, 61(1), 6-22. <http://dx.doi.org/10.1037/h0079218>
- Ma, X., & Klinger, D. (2000). Hierarchical linear modeling of student and school effects on academic achievement. *Canadian Journal of Education*, 25, 41-55. <http://dx.doi.org/10.2307/1585867>
- Ma, X., Ma, L., Bradley, K. (2008). Using multilevel modeling to investigate school effects. In A. A. O'Connell & D. B. McCoach (Eds.), *Multilevel modeling of education data* (pp. 59-110). Charlotte, NC: Information Age.
- Mandara, J. (2006). The impact of family functioning on African American males' academic achievement: A review and clarification of the empirical literature.

- Teachers College Record*, 108, 206-223. <http://dx.doi.org/10.1111/j.1467-9620.2006.00648.x>
- Marsh, K., Chaney, C., & Jones, D. (2012). The strengths of high-achieving Black high school students in racially diverse setting. *Journal of Negro Education*, 81(1), 39-51. doi:10.7709/jnegroeducation.81.1.0039
- Martin, A., & Marsh, H. (2006). Academic resilience and its psychological and educational correlates a construct validity approach, *Psychology in the Schools*, 43(3), 267–282. <http://dx.doi.org/10.1002/pits.20149>
- Martin, A., & Marsh, H. (2009). Academic resilience and academic buoyancy multidimensional and hierarchical conceptual framing of causes, correlates, and cognate constructs. *Oxford Review of Education*, 35(3), 353-370. doi:10.1080/03054980902934639
- Masten, A. (2001). Ordinary magic: Resilience processes in development. *American Psychologists*, 56(3), 227-238. <http://dx.doi.org/10.1037/0003-066X.56.3.227>
- Masten, A., & Coatworth, J. (1998). The development of competence in favorable and unfavorable environments: Lessons from research on successful children. *American Psychologist*, 53(2), 205-220. <http://dx.doi.org/10.1037/0003-066X.53.2.205>
- Morales, E., & Trotman, F. (2004). *Promoting academic resilience in multicultural America: Factors affecting student success*. New York, NY: Peter Lang.
- Morales, E. (2008). Exceptional female students of color: Academic resilience and gender in higher education. *Innovative Higher Education*. 33(3), 197-213. <http://dx.doi.org/10.1007/s10755-008-9075-y>

- Morales, E. (2010). Linking strengths: Identifying and exploring protective factor clusters in academically resilient low-socioeconomic urban students of color. *Roeper Review*, 32(3), 164-174. doi: 10.1080/02783193.2010.485302
- Morales, E., & Trotman, F. (2011). *A focus on hope: 50 resilient students speak*. Lanham, MD: Rowman- Littlefield/University Press of America Press.
- Murphy, J. (2010). *The Educator's handbook for understanding and closing achievement gaps*. Thousand Oaks, CA: Corwin.
- Murray, C., & Naranjo, J. (2008). Poor, Black, LD, and graduating: An investigation of factors and processes associated with school completion among high risk urban youth. *Remedial and Special Education*, 29(3), 145-160.
<https://doi.org/10.1177/0741932508315052>
- National Assessment of Educational Progress. (2016). *The nation's report card: 2015 mathematics and reading at grade 12 (NCES 2016-108)*. Washington, DC: U.S. Department of Education.
- National Center for Educational Statistics. (2012). *The condition of education: Reading and mathematics score trends (NCES 2012-045)*. Washington, DC: U.S. Department of Education.
- National Center for Educational Statistics. (2016). *The condition of education: Reading and mathematics score trends (NCES 2016-144)*. Washington, DC: U.S. Department of Education.
- Newman, B., Myers, M., Newman, P., Lohman, B., & Smith, V. (2000). The transition to high school for academically promising, urban, low-income African American youth. *Adolescence*, 35(137), 45-66. doi:10.1111/j.1939-0025.2010.01025.x

- Raudenbush, S., & Bryk, A. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage Publishing.
- Raudenbush, S., Bryk, A., & Congdon, R. (2011). *HLM 7 for Windows*. [Computer software]. Skokie, IL: Scientific Software International.
- Reis, S., Colbert, R., & Herbert, T. (2005). Understanding resilience in diverse, talented students in an urban high school. *Roeper Review*, 27(2), 110-120.
doi:10.1080/02783190509554299
- Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry*, 57(3), 316-331. <https://doi.org/10.1111/j.1939-0025.1987.tb03541.x>
- Sadovnik, A. (2008). Schools, social class and youth: A Bernsteinian analysis. In L. Weis, *The Way Class Works*. New York, NY: Routledge.
- Sellers, R., Copeland-Linder, N., Martin, P., & Lewis, R. (2006). Racial identity matters: The relationship between racial discrimination and psychological functioning in African American adolescents. *Journal of Research on Adolescence*, 16(2), 187–216. <https://doi.org/10.1111/j.1532-7795.2006.00128.x>
- Spencer, J. (2009). Identity at the crossroads: Understanding the practices and forces that shape African American success and struggle in mathematics. In D. B. Martin (Eds.), *Mathematics teaching, learning, and liberation in the lives of Black children* (pp. 200-230). New York, NY: Routledge.
- Steele, C. (2010). *Whistling Vivaldi and other clues to how stereotypes affect us*. New York, NY: W. H. Norton.

- Tabachnick, B.G. and Fidell, L.S. (2006) *Using multivariate statistics* (5th ed.) Boston, MA: Allyn and Bacon.
- Terman, L. (1916). *The measurement of intelligence*. Boston: Houghton Mifflin.
- Trask-Tate, A. & Cunningham, M. (2010). Planning ahead: The relationship among school support, parental involvement, and future academic expectations in African American adolescents. *Journal of Negro Education*. 79(2), 137-150.
<https://doi.org/10.1177/0021934715623522>
- Valencia, R. (1997). *The evolution of deficit thinking: Educational thought and practice*. Washington, DC: Falmer Press.
- Watson, J. (2001). Social constructivism in the classroom. *Support for Learning*, 16(3), 140-147. doi:10.1111/1467-9604.00206
- Wang, M., Haertel, G., & Walberg, H. (1997). Fostering educational resilience in inner-city schools. In M. C. Wang, G. Haertel, & Walberg, H. (Eds.), *Children and youth*. (pp. 119-140). Newbury Park, CA: Sage.
- Werner, E., & Smith, R. (1992). *Overcoming the odds: High risk children from birth to adulthood*. New York, NY: Cornell University Press.
- Williams, J., & Bryan, J. (2013). Overcoming adversity: High-achieving African American youth's perspectives on educational resilience. *Journal of Counseling and Development*, 91(3), 291-300. doi:10.1002/j.1556-6676.2013.00097.x
- Winfield, L. (1994). *Developing resilience in urban youth*. Oak Brook, IL: North Central Regional Educational Laboratory.

Young, M., & Yoon, B. (1998). *Estimating the consistency and accuracy of classifications in a standards-referenced assessment. (CSE Technical Report 475)*. Retrieved from <https://files.eric.ed.gov/fulltext/ED426067.pdf>

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Research Presentations

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